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COMPUTERWORLD

IBM sings the PC blues

By Jaikumar Vijayan and Michael Fitzgerald

"I'll surface again pretty quickly.... I'd like to be in something where the world changes more rapidly than not. It doesn't have to be in the industry."

–IBM Senior Vice President James A. Cannavino, who resigned last week

▶ See page 113

Big Blue is bleeding red all over its PC business. Despite plans to introduce an impressive slate of products this week, the IBM PC Co. is unlikely to bounce back into the black any time soon, observers said.

IBM's low-end woes are wide ranging, and the company is still struggling with a variety of reforms, including a wrenching corporate reorganization.

In the wake of the abrupt departure last week of senior executive James A. Cannavino, a well-known spokesman for IBM's PC business, concerns continued to mount.

IBM's major problems include the following:

- Continuing backlogs that plague its hard-

IBM blues, *page 113*

Novell bends

User pressure forces NetWare requester for NT, Windows 95

By Laura DiDio

Novell, Inc. last week said it will reverse months of internal politicking and quell a rising tide of user frustration by introducing a NetWare client requester for Microsoft Corp.'s Windows NT next quarter.

Similar support for Windows 95 is slated for that product when it ships later this year.

"Based on strong customer feedback, we have reevaluated and recommitted to providing cross-platform client connectivity," said Dawn Drake, Novell senior product manager for NetWare clients. "Novell will deliver support for both Windows NT and Windows 95 in a timely manner."

A NetWare client requester for Windows will let users easily exchange files and access services between the two environments.

Without specifying exact dates, Drake added that Novell will deliver a client requester for Windows NT Server sometime this summer. The client requesters for the Windows NT and Windows 95 platforms will initially be available for a nominal fee — less than $100 — and will eventually be bundled into the core network operating system.

Drake said Novell is currently "doing refreshes on the beta version" of the NetWare client requester for Windows NT at a limited number of customer sites. Preliminary beta software has been available on the Novell NetWire forum on CompuServe for several months.

Novell, *page 113*

Network tools converge to monitor app behavior

By Steve Moore

Network monitoring and modeling tools are finally dovetailing in ways that will help users pinpoint poorly tuned applications — often the real culprits behind client/server network problems.

Make Systems, Inc. in Mountain View, Calif., this week will introduce nine add-ons to its NetMaker XA network modeling and planning product suite, according to a source close to the company.

These features include a set of application profiles to help users analyze how specific applications — such as Lotus Development Corp.'s Notes or an Oracle Corp. database — affect network performance.

In a related move, CoroNet Systems, Inc., a privately held start-up in Palo Alto, Calif., last week unveiled its CoroNet Management System, which enables users to monitor application performance

Network tools, *page 16*

Firms draft cyber-safeguards

By Mitch Betts and Ellis Booker

Fears that an employee's outburst in cyberspace will land the company in court are prompting many firms to set some rules.

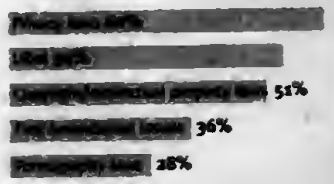
Several major corporations — including Chase Manhattan Bank, Johnson Controls, Inc. and Monsanto Co. — last week confirmed they are crafting "appropriate usage policies" on how employees should behave on the infohighway.

Some have finished writing their cyberspace policies, while others are still drafting them. In all cases, corporate information systems, security and legal departments are heavily involved.

For example, Johnson Controls in Milwaukee

Cyber-safeguards, *page 12*

IS professionals expressed moderate to great concern with the following on-line legal issues:



Base: 100 respondents; multiple responses allowed

Miss Manners' Guide to 'netiquette

You've read her witty etiquette column. You've followed her rules for proper behavior. Now, in an exclusive interview, syndicated columnist Judith Martin advises you on Internet etiquette. So sit up straight, take your elbows off your desk and turn to In Depth, page 85.

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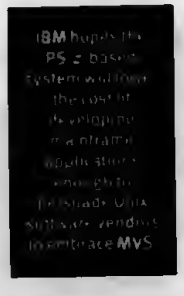
IBM forges little big iron hybrid

By Craig Stedman
LOS ANGELES

Call it a micromainframe. Seizing the downsizing bull by the horns, IBM will offer a System/390 processor embedded in a PS/2 server as a cut-rate platform for off-loading application development and some processing from traditional hosts.

The not-so-big iron was demonstrated at last week's Share, Inc. user group conference here, and IBM executives said it should be introduced in the next month or two at prices below $100,000. Initially, the system will target software vendors and large mainframe shops that request special bids, but a general rollout is expected before mid-year, they added.



The mainframe/PS/2 hybrid, called the PC Server 500 S/390, drew strong interest from several Share attendees. They said it could help reduce their software and maintenance costs by freeing them to move some applications off conventional mainframes.

Big savings

Northern Telecom, Inc., a maker of telecommunications equipment, was told that its monthly bill for IBM's VTAM networking software would drop from $6,000 to approximately $300 — 95% — if it installed the upcoming server hard-

Big iron, *page 15*

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What's Inside

March 6, 1995

Tunnel Vision

IS holds the key to making **ergonomics problems** such as carpal tunnel syndrome better or worse for computer users. But the fact that they ignore the issue is often painfully obvious. *See* **Management**, page 77.

NEWS

- **PC industry consolidation** takes a new shape in the wake of the AST/Samsung convergence. *Page 4*
- Middleware products promise to help corporations build **mobile applications**, but users seem uncertain of what they really are. *Page 6*
- **Covia** takes aim at IBM with beefed up middleware software. *Page 6*
- Cisco says it will deliver capabilities needed to enable the use of **multimedia applications** over existing network infrastructures. *Page 10*
- Observers say **Digital**'s LinkWorks has the technical prowess to be a Notes-killer, but the company is walking away from the fight. *Page 14*
- **Hewlett-Packard** provides a glimpse of its 64-bit processor plans but stays mum on its collaborative development with Intel. *Page 16*
- Microsoft will have **hierarchical storage management** capabilities in the next release of NT. *Page 20*
- **Baan** is gaining ground in the U.S. client/server manufacturing software market. *Page 24*

closer look: Software distribution

DESKTOP COMPUTING

- **Electronic software distribution** remains an immature market, but products are still providing benefits. *Page 39*

WORKGROUP COMPUTING

- **Pricing** questions haunt Digital as it pitches a low-end workstation and a replacement for the venerable MicroVAX. *Page 45*

ENTERPRISE NETWORKING

- One of the first attempts at **interactivity** over a cable system is met with both praise and derision. *Page 53*

LARGE SYSTEMS

- **Cray Research** targets industrial users with its next generation of supercomputers. *Page 61*

APPLICATION DEVELOPMENT

- Add-ons push users past **Visual Basic** limits. *Page 69*
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IN DEPTH

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CAREERS

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MARKETPLACE

- Pickings are still slim in E-mail privacy products. *Page 101*

COMMENTARY

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- **Charles Babcock** urges IS to be on alert for hacker attacks not only from the Internet but from the phone lines, too. *Page 8*
- **John Diebold** says the global public infostructure needs rethinking. *Page 35*
- **Esther Dyson** finds that the action in software isn't in the products but in new business and pricing models. *Page 35*

How do you measure up?

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Executive Briefing

Novell will end the suspense and engender a sigh of relief among frustrated users when it officially announces in two to three months that it will indeed deliver a client requester for **Microsoft**'s Windows NT and Windows 95 environments. The NetWare requester will allow seamless connectivity between NetWare and Windows environments. *Page 1*

Guarding against legal liabilities in cyberspace, pioneering companies are writing usage policies on what their workers can and cannot do on the Internet and other on-line services. Whether they have just finished writing their cyberpolicies or are still drafting them, corporate IS and security and legal departments are heavily involved. *Page 1*

Seizing the mainframe downsizing bull by the horns, IBM plans to market a System/390/PS/2 hybrid as a cut-rate platform for offloading application development and some processing from host systems. *Page 1*

No one is writing the obituaries yet, but the IBM PC Co. is almost dead in the water. As losses mount and market share drops, the beleaguered company is fighting back with new notebooks, servers and desktop PCs — but is the effort too little, too late? *Page 1*. James A. Cannavino leaves IBM after 32 years. *Page 113*

Companies are fighting back against postal rate increases with software that cleans up addresses, adds bar codes and presorts mail. *Page 61*

On site this week: John Deere's Waterloo Works was running out of bandwidth on its point-to-point Ethernet wide-area network switches. It installed Digital's GigaSwitch/FDDI device to solve bandwidth constraints, improve network scalability and cut costs. *Page 53*. The IS director at New Orleans' **The Audubon Institute** has to do more with less, and succeeds. *Page 40*. **Europcar International** now has one of the largest Unix-based systems worldwide. *Page 63*. Toronto-based **Scotiabank** dives into object technology by standardizing on **Versant**'s object database. *Page 69*

The 5th Wave *by* Rich Tennant

"You know, I liked you a whole lot more on the Internet."

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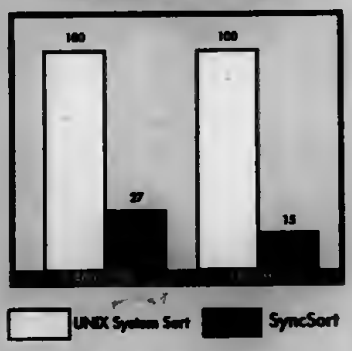
The UNIX System Sort

PERFORMANCE



FUNCTIONS

	UNIX System Sort	SyncSort
RECORD FORMATS		
Fixed length binary	NO	YES
Variable length binary	NO	YES
ASCII Text	YES	YES
RECORD PROCESSING		
Selection	NO	YES
Reformatting	NO	YES
Summarization	NO	YES
Grouping	NO	YES
CODESET SUPPORT		
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EBCDIC	NO	YES
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UNIX

Market pressure pushes firms to the limit

AST Research joins with Samsung Electronics to gain stability

By Michael Fitzgerald

Last week's $450 million investment by Samsung Electronics Ltd. in cash-starved AST Research, Inc. was seen by some observers as a preview of what could happen in the wake of price cuts expected from major PC makers this week. It means consolidation. Or does it?

AST's cash woes, brought on by an inability to execute on new products and intense market pressure, probably forced the company to seek a suitor, analysts said. Korean conglomerate Samsung gains a 40.25% chunk of the Irvine, Calif., computer maker, which is still the world's sixth-largest PC company.

Despite its friendly investor, AST and its brethren will continue to face significant market pressure. Last Friday, fast-climbing Hewlett-Packard Co. cut prices on new desktops by up to 11%—its third reduction in four months. Simultaneously, Zenith Data Systems rolled back prices by up to 29% across its entire 486 product line. Compaq Computer Corp. and IBM PC Co. are expected to follow suit this week.

Price plunge continues

HP last week continued its assault on PC prices by rolling back pricing by up to 26% on its OmniBook notebooks, up to 11% on the Vectra desktop PCs and up to 13% on its NetServer lines.

Vendors fight to hold on

Still, despite the continuous price actions of the past two years, no one has actually seen "vendors go down the tubes totally," said Richard Zwetchkenbaum, an analyst at International Data Corp. in Framingham, Mass. He said "even companies like Everex and Northgate that ultimately hit bottom had some kind of bounceback and still play in the market."

So far this year, two other PC suppliers who came close to the abyss managed to escape disaster. Zeos International, Inc. in St. Paul, Minn., was purchased by Micronics Computers, Inc. in Fremont, Calif., and CompuAdd Corp. in Austin, Texas, was bought out by Taiwanese interests.

However, price wars have affected even the seemingly solid bets. Zwetchkenbaum said in terms of market share, the Top 10 players just held their ground last year after experiencing solid growth in 1993. And four of them — the PC Co., Apple Computer, Inc., Dell Computer Corp. and AST — even lost share.

Eliminating user problems

What this seems to mean for users is that even if their vendor of choice runs into trouble; they are unlikely to get stuck with unsupportable hardware. In addition, they probably can avoid the costly and time-consuming system testing involved in finding a replacement vendor.

That is because industry officials predict that the pace of relationships, and possibly mergers, will continue. Compaq's recently announced design and manufacturing relationship with Taiwan's Inventec Group is cited by many as an example of how even the most profitable players need outside help.

The AST/Samsung relationship "is more convergence" than a sign of consolidation, said AST's chairman Safi Qureshey last week. Fresh off a plane from Korea, where he met with Samsung executives, Qureshey stressed that AST's link with Samsung would help it move into new markets. He is particularly interested in the still-undefined but rapidly growing consumer market, with its potential for set-top boxes and computerized devices that are expected to replace telephones and possibly even televisions.

AST Chairman Safi Qureshey *says the company's link with Samsung will help it move into more lucrative markets*

"We can't just stand alone," Qureshey said. "We're not just selling to the Fortune 500. Today, it's the Fortune 5 million, and ultimately, it's the World 5 billion. In trying to reach those customers, the computer itself is changing."

Qureshey said the race to capture the cost-conscious but huge consumer market will see more and more companies engaging in outside alliances. The trend is another sign that corporate users are becoming less important in pushing technology forward. In the past year, vendors have pointed to the consumer market as driving demand for technologies such as multimedia and Intel Corp.'s Pentium, while corporations hold back and test technologies carefully before deploying them.

This situation benefits the corporate user, Qureshey said. "They're not the early adopters . . . so they will get lower pricing and better knowledge of the products."

Senior writer Jaikumar Vijayan contributed to this story.

ALR abandons commodities. See page 32.

Document management

Oracle delays release of groupware products

By Kim S. Nash

Oracle Corp.'s groupware strategy is changing by the minute.

The Redwood Shores, Calif., company is expected this week to revise delivery dates and packaging for its forthcoming groupware product set, sources familiar with the company's strategy said last week.

Formerly known as Oracle Documents, the product line was renamed Groupware/2000 late last week, playing off the Workgroup/2000 moniker of Oracle's PC-level databases and tools.

Groupware/2000, which Oracle plans to unveil this week at the GroupWare '95 show in Boston (see story page 14), is a suite of workflow, document management and multimedia electronic-mail products, among others. It is the successor to the Oracle Office 2.0 office automation product set.

Delays expected

But Oracle has delayed by several months the beta testing of the document management part of Groupware/2000 — dubbed Oracle Library — until late this month or early April, according to users briefed by Oracle.

That is disappointing to customers anxious to start using the Oracle-built groupware that the company began talking about 18 months ago [CW, Sept. 6, 1993].

Oracle and Lotus are working on the following ways to integrate their products:

- A bridge to connect Notes to the Oracle7 database
- Links between Notes and Oracle's Cooperative Development Environment (CDE) tools so programmers can build applications with CDE that can use Notes data.
- Modifications to the Lotus Script scripting language to understand PL/SQL, Oracle's brand of SQL.

Camp Dresser & McKee, Inc., an environmental consulting firm in Cambridge, Mass., had hoped by now to be in the thick of a project to put complex engineering drawings on-line and encourage tighter teamwork at the company, said Peter Palmisano, chief information officer.

"We were originally supposed to get a beta version of [Library] last fall," Palmisano said. "We've had to slow down our document management plans."

Meanwhile, five months after Oracle and Cambridge, Mass.-based Lotus Development Corp. announced separate plans to build bridges among Notes and a variety of Oracle products, users have seen neither hide nor hair of such links. Integration had been expected by now [CW, Oct. 3, 1994].

Joining forces

Mutual mudslingers beforehand, Lotus and Oracle surprised the industry last September with a vow to jointly build two-way links between Notes and the Oracle7 database and other Oracle products. While engineers at both companies have mapped out design specifications for three types of integration, the products are "not in shape now to be tested by customers," said a source close to Oracle (see chart).

Notes-to-Oracle bridges are scheduled to enter beta testing this summer according to a source close to Oracle. General availability is stated to coincide with the shipment of Notes 4.0 in September

The products are scheduled to enter beta testing this summer, according to the source. General availability is stated to coincide with the shipment of Notes 4.0 in September, the source added.

Tim Davenport, vice president of developer tools at Lotus, confirmed that the companies are several months away from full-fledged products. He added that the promised Notes-to-Oracle bridges are still on track for delivery "sometime in 1995."

E-mail is also on the table; the firms may link directories for Oracle Mail and Lotus' CC: Mail, Davenport confirmed.

Oracle loyalists are the most likely candidates to buy Oracle-built groupware products, said Thomas Koulopoulos, co-chairman of the Workflow Management Coalition. The group, which includes 80 vendors, users and analysts, is working to define interoperability standards among workflow products.

Yet "outside of that base, very few people are looking at Oracle as a groupware provider," Koulopoulos said. "They just want to be able to attach a relational database in a useful way to Notes."

A deal between Lotus and Verimation gives Notes users another front end. See page 46.

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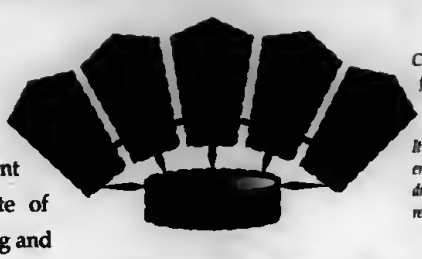

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Mobile confusion mounts

Defining middleware remains a problem; wireless apps burden user resources

By Michael Fitzgerald

■ Corporations looking to serve up effective mobile applications are finding themselves anxiously sifting through a menu of middleware products that might as well be in hieroglyphics.

The products actually perform a variety of functions that make them more than middleware, so users seem uncertain of what the products really are.

Middleware, which has a variety of definitions, is a technology that typically sits between an application and an operating system and allows for the transfer of information between incompatible operating systems.

"The biggest issues [in mobile computing] aren't technical. They're defining what it all means for customers and where's the business value," said Allan Lees, manager of strategic planning at Sybase, Inc.

For instance, wireless applications, considered an essential piece of mobile computing, "right now put an enormous burden on the user," Lees said. "We made the assumption that if you're a company using mobile computing, your application developers don't want to care about what they're writing to, and your users don't want to care about what transport you're using."

Missing technology

To the customer, not having to care about development and transport protocols translates into buying one piece of software that will accommodate both current and future applications without writing new code. It also means the ability to use any network — wired or wireless — seamlessly and transparently.

Neither situation exists today.

"We want something to let us use disparate networks — circuit-switched cellular, CDPD or whatever," said Dayakar Veeriapati, a research analyst at Union Pacific Technologies in St. Louis. "Our folks should be able to access any transport mechanism." The lack of that ability has muted Union Pacific's interest in wireless.

Recent moves in the market may serve as a sort of Rosetta stone for mobile users. On Feb. 17, for instance, Sybase purchased Complex Architectures, Inc. in Wakefield, Mass., lending credibility to a start-up whose Enterprise Messaging Services product lets messaging services run over multiple protocols. That same week saw Racotek, Inc. introduce KeyWare, an environment that bridges incompatible wireless and wireline networks and provides a universal application programming interface.

While analysts consider KeyWare a breakthrough product, obstacles to wireless remain. For example, middleware, no matter how effective, does nothing to reduce the price of the services — a main reason users cite for resisting the move to wireless.

"When you have a sales force of 50-plus people, and the minimum fee is $80 a month per unit, you're spending a lot of money," said Joe Manning, MIS director at Wilson Sporting Goods in Chicago, which is scaling back its pioneering wireless sales force automation project (see story below)

Cost aside, many users say they would like the ability to combine the various wireless networks to improve coverage. Those networks include Ardis Co.'s Advanced Radio Data Information Services network, RAM Mobile Data USA L.P.'s Mobitex network and the multivendor Cellular Digital Packet Data (CDPD) protocol.

Middleman

Products that link various wired and wireless services are coming at the market from every conceivable angle. The following are a few examples:

Vendor/Product	Operating system	Protocol
Racotek KeyWare	OS/400, OS/2, Unix, Windows, DOS	TCP/IP, IPX, SNA, LU6.2, NetBIOS
Oracle Oracle-in-Motion	Unix (servers), Windows (clients)	TCP/IP
Xcellenet RemoteWare 2.0	Unix derivatives, Windows, DOS, OS/2, Mac OS, VAX/VMS	TCP/IP, NetBIOS, SPX

Source: Aberdeen Group, Boston

Product pileup

Still, the array of products on the market tends to add to the confusion rather than reduce it:

■ A product such as Xcellenet, Inc.'s RemoteWare 2.0 is considered primarily a network management tool, not middleware, but it could be used to piece together a seamless wireless network.

■ Racotek officials say KeyWare is not middleware at all but rather an application environment.

■ Oracle Corp.'s Oracle-in-Motion provides a way to integrate Oracle database back ends with clients over both wired and wireless networks. It thereby performs some of the functions of middleware, though it is intended to make data queries easier for mobile users to perform.

And these are just a few products that could be used as middleware.

"It's a pretty confusing market. Breaking every product down into ... what it does and doesn't do is difficult," said Virginia Brooks, an analyst at Aberdeen Group in Boston.

Still, some users say the appearance of a product such as KeyWare may make it easier for users to build their own networks.

"Right now, you've got to make one of three decisions: Architect the whole [wireless network] yourself, farm it out to some consultancy with expertise in wireless data or throw yourself at the mercy of the vendors and say, 'Here's a blank check. Make it happen,'" said Lee Nolan, a senior telecommunications engineer at The Travelers Insurance Co. in Hartford, Conn.

A wireless disconnect

Wireless is being hung out to dry by at least one pioneering user: Wilson Sporting Goods' golf course division, which adopted the technology in July 1993, last month severed its final wireless line.

The Chicago company was a pioneer in using Ardis Co.'s Advanced Radio Data Information Services Network (ARDIS) for its sales force. It leased ARDIS radio modems for its 50 salespeople, who were already using notebooks.

Wilson decided in the fourth quarter of 1994 that it wanted to start moving away from wireless because of such issues as cost, usage and limited coverage, said Joe Manning, Wilson's MIS manager.

"We're not completely against [wireless], but we're concerned about our territory coverage," Manning said. He added that the sales force had been reluctant to use wireless, in part because of the ungainly external modem. Also at issue was that costs were higher than Wilson would have liked — a minimum of $80 a month per user, not including potential roaming charges.

While Wilson could potentially address coverage with a product such as Racotek's KeyWare, Manning said the difficulty of gauging wireless's return on investment would probably mean the company will wait a while before it returns to the technology.

— Michael Fitzgerald

Middleware

Covia offering aimed at IBM

By Rosemary Cafasso

Covia Technologies plans to open fire on IBM in the message-oriented middleware market this week with an upgraded version of Communications Integrator.

The Rosemont, Ill.-based company, a division of Galileo International, is scheduled today to introduce Communications Integrator Release 3.1, which will contain more than a dozen additional components ranging from improved systems management functions and developer tool kits to a link to Notes. Many of the new functions are slated to ship in the second quarter.

With about 40 customers, Communications Integrator most directly competes with IBM's MQ Series. While analysts note that there are dozens of middleware players, IBM and Covia are the only companies currently targeting large-scale information systems shops that need comprehensive middleware offerings.

A sample of Release 3.1's upgrades

Tool kits, including a "Communications Integrator For Dummies," which provides sample code and guidelines and an Applications Developer's Toolkit, which includes routines for setup and calls.

Security upgrades, including links to IBM's Resource Access Control Facility to filter messages routed via Communications Integrator.

Management tools, including CI View, which allows users to view the contents or state of information about the network, and CI Configurator, which assists in setting up files to configure a middleware network.

Database Access Additions, which will provide support for several relational database management systems, starting with Sybase, Inc.'s system.

"This is a shot right over the IBM bow," said Sally Cusack, an analyst at Standish Group International, Inc. in Dennis, Mass., of Covia's 3.1 rollout.

Message-oriented middleware is one approach to the critical task facing nearly every IS site — gluing together a mixed bag of applications on multiple platforms. With message-oriented middleware, applications can communicate by sending messages to one another for such tasks as requesting data. The middleware handles the communications, different protocols and translations.

Covia's Release 3.1 "is of interest to the big guys, those large companies with multiple platforms to be integrated," said Paul Mason, an analyst at International Data Corp. in Framingham, Mass.

Healthcare Data Exchange, a subsidiary of Shared Medical Systems Corp. in Malvern, Pa., said it is looking forward to several features in Release 3.1 but is particularly anxious to get hold of a remote management component, said Gary Talda, a senior programmer/analyst.

Currently, Healthcare Data Exchange has to manually update 30 remote sites when changes are required, which is "very time-consuming and extremely labor-intensive," Talda said. With 3.1, Talda said he would be able to set up changes and execute them from a central site.

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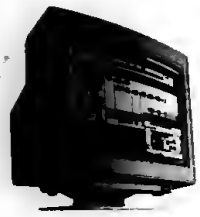

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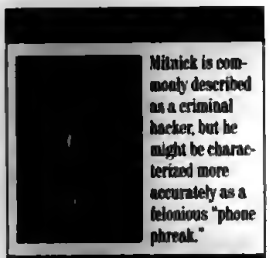
A hacker's lines of attack

The FBI and computer security experts recently tracked down and arrested Kevin D. Mitnick for vandalism and theft on the Internet. But IS managers can draw little comfort from this episode.

Yes, the Internet is more prone to security problems than your corporate network, and yes, on-line services such as the The Well in Sausalito, Calif., offer more points of entry than your mainframe database. But consider this: Friendly callers — employees working from home, suppliers, outside consultants — are given access to your computer system from dozens of telephone lines into your company. As an IS manager, you expect the telephone system to be secure. Guess again.

Mitnick is commonly described as a criminal hacker but he might be more accurately characterized as a felonious "phone phreak." His previous arrest and conviction stemmed from his breaking into Digital's internal DECnet. Digital's network security at the time ranked among the best. But for 18 months, its network police watched and tracked Mitnick's intrusions but could not identify him or stop his break-ins.

At one point, Mitnick downloaded the source code to the VAX operating system, Digital's crown jewel on which it placed a value of $1 million. Mitnick's associate blew his cover, and Digital had him arrested and convicted. But it could not have done so on the strength of its policing. One of Mitnick's tactics was to read the E-mail of his trackers and avoid their traps.



Mitnick is commonly described as a criminal hacker, but he might be characterized more accurately as a felonious "phone phreak."

Charles Babcock

To appreciate the hazard posed by skilled hackers, consider the central office switches of the local telephone company as merely specialized computers, with their own software commands and limited safeguards. These computers can be broken into by outsiders who know how to methodically search them for the lines that are connected to your computers. Mitnick is believed to have rummaged through the phone lines at the Nashua, N.H., central telephone office, the site of Digital's software development facility, until he found a line open to Digital's computers.

Digital's programmers frequently dialed into the office systems while working from home, and someone no longer working on a line had not logged off, leaving open a line into an access port. The interesting part is that this alone would not have gotten Mitnick as far as he wanted to go. But having seized an open line, he then called a Digital computer operator, posing as a Digital programmer, and asked to be logged in with system manager privileges. The operator obliged.

"Once logged in with manager's privileges, Mitnick disabled the system audit function, created an account for himself that would then be invisible and turned the audit back on. The whole attack took less than five minutes," notes Ray Kaplan, consultant for CyberSafe Corp., a commercial security firm in Redmond, Wash.

How could Digital's security experts have foreseen this exposure? Morrie Gasser, author of *Building A Secure Computer System*, says, "The problem is people, not computers." Or as Kaplan notes, a skilled hacker, given an access line, can penetrate nearly any system. "Most have more holes than Swiss cheese," he says.

When caught this time, Mitnick was at his ham-handed worst. He left taunting voice mail for computer security expert Tsutomu Shimomura at the San Diego Supercomputing Center.

What if an equally skilled hacker broke into your company's computers but lacked Mitnick's craving for attention? Mitnick never did anything for profit with the VMS source code or the alleged 20,000 credit-card numbers he is accused of taking from Netcom Communication in San Jose, Calif. Other intruders might be less disinterested in material gain. What is your database worth? How good is its protection?

Babcock is *Computerworld*'s technical editor. His MCI Mail address is 575-2737

News Shorts

Shell outsources PC support, service

London-based Shell Group last week confirmed it has given a "framework" contract to a vendor consortium to manage all aspects of installation, maintenance, training, help desk and technical support for its 80,000 PCs worldwide. Bell Atlantic Corp. in Philadelphia is the designated preferred support provider for Shell Group operating companies in North America. A spokeswoman for Shell Oil Corp. in Houston said the U.S. branch of the company will not be affected by the contract; Shell Oil has already outsourced most of its PC support activities to multiple vendors.

Unix desktop at UniForum '95

Attendees at UniForum '95 in Dallas next week will get their first glimpse of Common Desktop Environment (CDE), a graphical desktop interface for Unix machines. Developed jointly by **Digital Equipment Corp., Hewlett-Packard Co., IBM, Novell, Inc., SunSoft, Inc. and TriTeal Corp.**, CDE will feature a PC-like calendar, electronic mail and desktop applets combined in a graphical user interface for major Unix vendors to use.

Eager exits Community Mutual

After about a year on the job, Bill Eager has left the post of chief information officer at **Community Mutual Insurance Co.** A spokesman for the Cincinnati-based firm last week declined to give a reason for Eager's departure. Earlier this year, Eager was credited by a Community Mutual vice president as significantly improving information systems operations at the company. Eager joined Community in January 1994 as its third CIO in four years. Community has named corporate IS director Steve Bowman as acting CIO.

Rietveld leaves WordPerfect

In a surprise move, **Novell, Inc.** said last week Adrian Rietveld, executive vice president and general manager of WordPerfect, the Novell Applications Group, since 1992, was leaving the company "to pursue personal interests." No replacement was named. In a prepared statement, Novell said Rietveld's direct reports will report to company President and CEO Robert Frankenberg. Rietveld assumed the top spots at WordPerfect just months before the company was acquired by Novell.

Adrian Rietveld

IBM ships DOS 7.0

IBM last week shipped PC-DOS 7.0, which includes Stacker 4.0 disk compression software from **Stac Electronics**, extensive on-line help and improved mobile computing features, including file synchronization. It will also feature **Central Point Software's** RAMBoost memory optimizer and backup utilities.

OS/2 Warp Connect to expand

IBM said it will expand beta testing on OS/2 Warp Connect, which bundles Warp with a range of networking and connectivity software, next week. Included in the package is support for TCP/IP, remote connections, peer-to-peer networking and client access to Novell, Inc. NetWare, IBM LAN Server and Notes networks. General availability is expected in late April or early May.

AlliedSignal teams with HP

AlliedSignal Aerospace Co. in Torrance, Calif., signed a three-year contract with **Hewlett-Packard Co.** that makes HP the sole supplier of Unix workstations for its engineering units. The contract, valued at $30 million, will have the greatest impact at 10 major sites, according to Paul Hoedeman, CIO at AlliedSignal Aerospace, the $4.6 billion arm of $12.8 billion AlliedSignal, Inc. Hoedeman said the company is standardizing on one hardware vendor to ease support and service tasks.

CA puts new tool set into Unicenter

Computer Associates International, Inc. last week said it will integrate **BMC Software, Inc.**'s Patrol application and database management tool set into its CA-Unicenter cache. The CA/BMC accord raised uncertainty about the future of two recently acquired CA products: CA-Unicenter/DB Alert and CA-Unicenter/Systems Alert, both of which overlap with the functionality of BMC's Patrol tools. CA will offer its customers both sets of event-detection software, an executive said.

DEC launches DECadmire

Digital Equipment Corp. said last week it will launch today DECadmire for Visual Basic, the first version of the client/server application development package to provide a Windows user interface. It includes a team development framework linked to Microsoft Corp.'s Visual Basic and generates all the code logic for client and server.

Benchmarks for SNA over TCP/IP

The Tolly Group, an independent testing lab in Manasquan, N.J., plans this week to release the result of benchmarks it ran for routing SNA data over TCP/IP using equipment from a range of router vendors. Among companies supporting the RFC 1434 precursor to the proposed Data Link Switching standard, **Bay Networks, Inc.** got the highest composite score followed by **Proteon, Inc.** and IBM, Tolly said. Also tested were several proprietary SNA-over-TCP/IP implementations; **Cisco Systems, Inc.** just barely scored higher than **Hughes Network Systems** in that arena.

SHORT TAKES Florida lawyer Anthony R. Martin announced the formation of a Palm Beach, Fla.-based political action committee called the **Committee to Fight Microsoft**. It will lobby for antitrust legislation curbing Microsoft's market power. ... **Harris Computer Systems** in Fort Lauderdale, Fla., said its $29.6 million offer to acquire **Concurrent Computer Corp.** in Oceanport, N.J., was rejected by Concurrent's board.... **SunSoft, Inc.** in Mountain View, Calif., last week extended its Solaris 2.4 Unix operating system to multiuser Intel Corp.-based servers.

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Cisco attacks crowding on multimedia nets

By Stephen P. Klett Jr.
SAN FRANCISCO

One question haunting multimedia aficionados these days is whether the network infrastructure at a typical business can handle the bandwidth demands of multimedia applications.

According to Cisco Systems, Inc., that is not a problem. At a multimedia conference here last week, the San Jose, Calif.-based internetworking company unveiled a framework said to enable users to begin using multimedia applications today, without expensive and disruptive upgrades to their networks.

"The perception that the only way to get the necessary bandwidth is to bring in ATM is wrong. Users don't need to overhaul their nets or change their switching infrastructure," said John Chambers, Cisco's president and chief executive officer.

These bold claims — from a company not known as a multimedia leader — raised eyebrows among users and analysts. However, Cisco said by year's end it will deliver additions to its Internetworking Operating System (IOS) software that will put its infrastructure where its mouth is.

In combination with current IOS capabilities, these additions were designed to enable real-time delivery of collaborative applications combining text, voice, images and video across LANs and WANs.

By midyear, Cisco will add a weighted fair-queuing algorithm to its IOS software to reduce latency and minimize jitter. The algorithm should improve the quality of service in desktop video applications, observers said.

Following protocol

Cisco is also working with the Internet Engineering Task Force and multimedia developers to deliver the Resource Reservation Protocol, a standard internetwork protocol that will let applications reserve the bandwidth for different classes of service. Scheduled for delivery in the second half of this year, this protocol will support multiple network protocols such as TCP/IP, Novell, Inc.'s IPX and Apple Computer, Inc.'s AppleTalk.

Finally, Cisco now supports IP Multicast multiprotocol packet delivery on its switch and router platforms. With IP Multicast, a user sends a packet addressed to multiple recipients and the network replicates the packet only when needed.

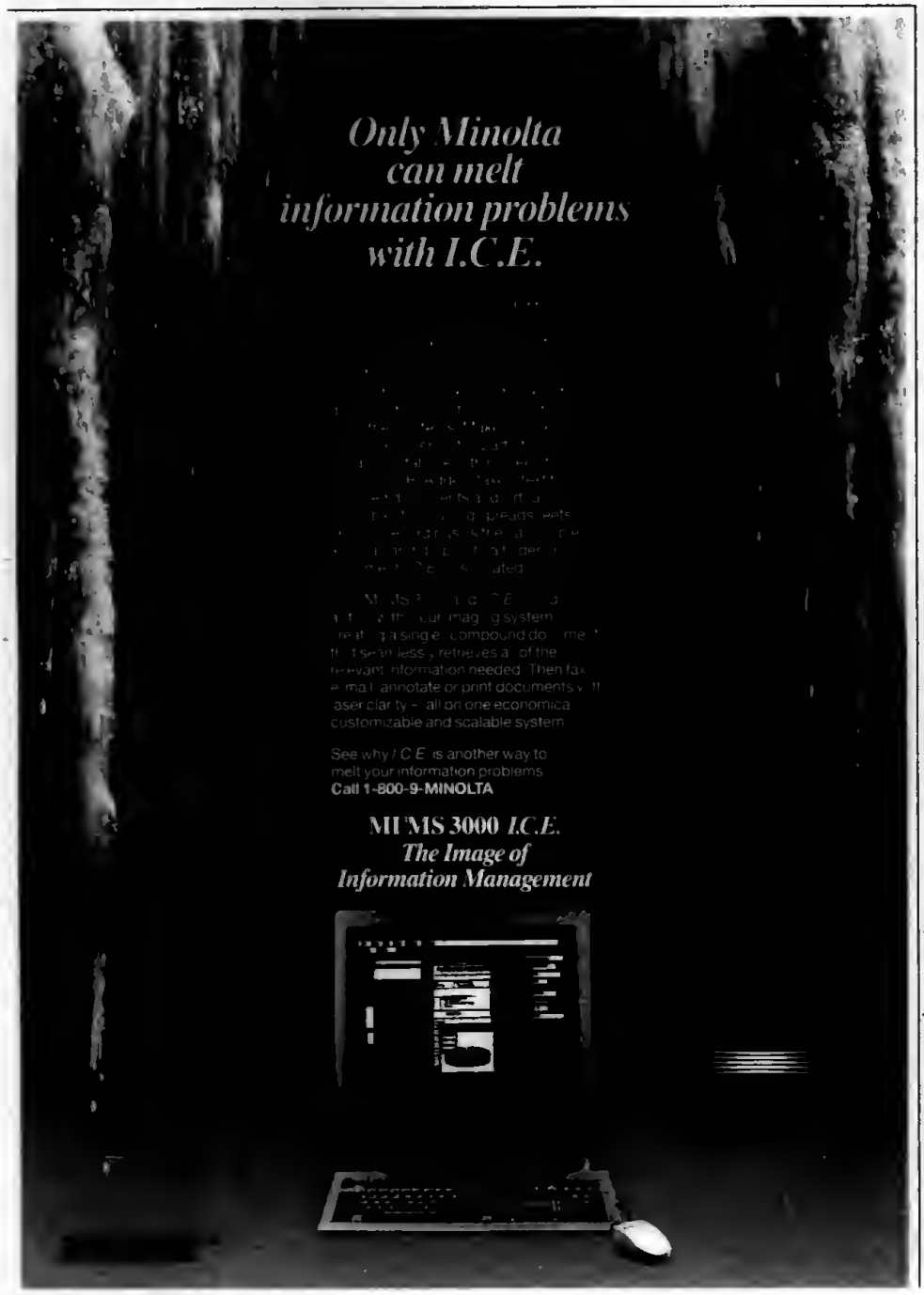
This transmission method will provide better bandwidth efficiency compared with traditional techniques such as broadcast, which forwards packets to everyone on the network to ensure they reach their intended recipient.

"What Cisco's done with multicasting is give us a much more rational way to deploy multimedia applications in a production environment," said David Meyer, senior network engineer at the University of Oregon in Eugene.

The university is using an IP Multicast-enabled Cisco router to run videoconferencing applications and shared whiteboard applications among individual engineers. "You can do a lot more with multimedia than the average person believes today without completely reengineering your network," Meyer said.

Analysts agreed that the IOS capabilities would enable at least low-end multimedia business applications such as presentations over existing LAN and WAN infrastructures.

"This is wonderful news for my clients because it means they don't have to rip out existing equipment and applications to use multimedia today," said Al Lill, an analyst at Gartner Group, Inc. in San Jose, Calif.



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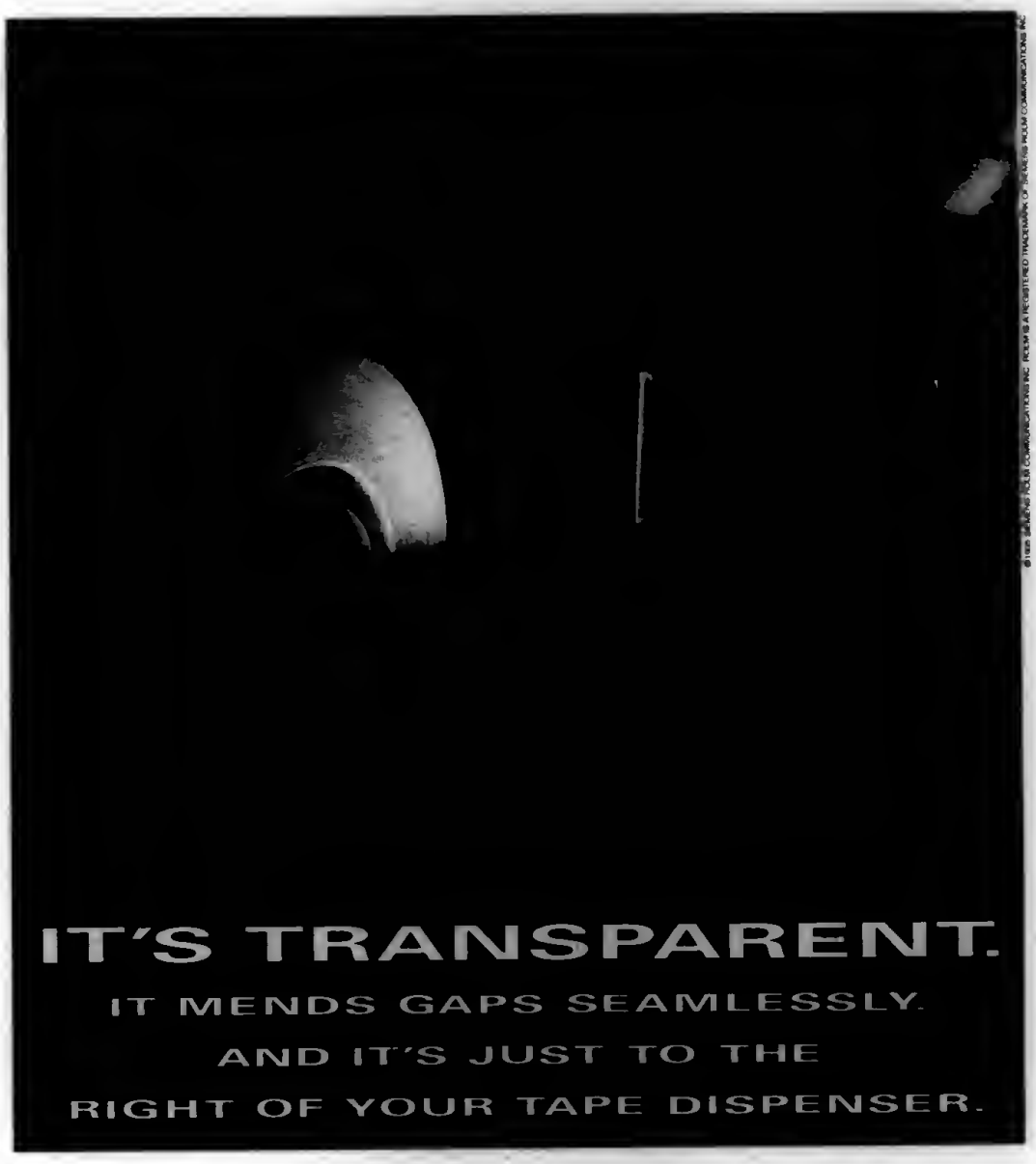

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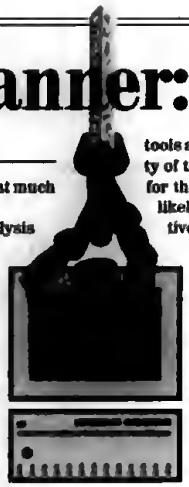
SATAN scanner: Curse, blessing or both?

By Gary H. Anthes



SATAN is coming to a network near you. That much is clear.

But whether SATAN — the Security Analysis Tool for Auditing Networks — will prove to be a hacker's weapon from hell or a trusted ally of network administrators was a matter of much debate last week.

The SATAN "attack scanner" is one of a handful of software packages intended to probe the networks of Unix computers for security flaws.

SATAN has been under development — and discussion in cyberspace — for more than a year. But worries escalated last week when it was learned that SATAN was among the software purloined recently by notorious hacker Kevin Mitnick. SATAN's authors — a security researcher and a network security specialist — said last week they will distribute beta copies of the code March 15 and make it generally available on April 1.

SATAN's authors said the attack scanner will report information back to the user about poorly configured network services, bugs in systems or network utilities and "poor or ignorant policy decisions."

"SATAN has succeeded with ominous regularity to finding serious holes in the security of Internet sites," the authors said in a recent Internet newsgroup posting.

Although the authors of attack scanners insist the tools are intended to help users beef up the security of their networks — and indeed they are used for that purpose — critics charge they are more likely to be used by those with less altruistic motives.

"SATAN will be used by the black-hat community more than the white-hat community," said Eugene Schultz, deputy program manager for the International Information Integrity Institute at SRI International in Menlo Park, Calif. "The Internet is fundamentally unsafe. Now we have another danger element introduced into an already dangerous situation."

One of a kind

Unlike other attack scanners, SATAN can identify and report even those security flaws for which there are no known protections. "SATAN will open up new ways of attacking systems by those hackers who are dissatisfied with current hacking attacks," Schultz said.

Yet despite the concerns, users swear by the utility of scanners. Ruth Page Jones, a Unix and Internet security expert in Milwaukee, used Bellcore's Pingware scanner at a large client site and found security flaws in 10% to 20% of the hosts attacked. "I was quite surprised to capture a lot of password files," she said.

Worries about SATAN are especially keen because it will be made publicly available via an anonymous Internet file transfer protocol (FTP) site. Similar offerings such as Pingware are subject to careful distribution controls. For example, Bellcore screens would-be buyers of its scanner, and buyers are advised to install it on a secure machine where root access is required to run it.

"I think the people who run these things need to be extremely careful," Jones said. "I kept it encrypted on my machine."

Experts said users should have an Internet firewall to repel network scanning attacks. The downside, however, is that a firewall strong enough to keep SATAN at bay would be so strict that it would also block many legitimate user requests.

And not all security experts are alarmed about SATAN's arrival. Eric Schmidt, chief technical officer at Sun Microsystems, Inc., called SATAN a "net plus" for security. He did caution users against installing any software without carefully evaluating it for viruses, Trojan horses and the like, however.

"Like any tool, SATAN can be used for malicious purposes," acknowledged Wietse Venema, SATAN co-author and a security researcher at Eindhoven University of Technology in Eindhoven, the Netherlands. "It is a double-edged sword."

SATAN was developed by Venema and Dan Farmer, a network security specialist at Silicon Graphics, Inc. The two insist that SATAN is intended to boost security by heightening user awareness of security issues. "If you are a company on the Internet and you don't run this right away, that would be a tactical error," Farmer said.

Charles Babcock warns IS of the lessons of the Kevin Mitnick hacker case. See page 8.

Cyber-safeguards

CONTINUED FROM PAGE 1

wrote a draft policy, dated Jan. 20, for internal and external electronic-mail networks. The policy prohibits the following activities:

- Operating a business for personal gain, searching for jobs outside Johnson Controls, sending chain letters or soliciting money for religious or political causes.
- Offensive or harassing statements, including "disparagement of others based on their race, national origin, sex, sexual orientation, age, disability, religious or political beliefs."
- Sending or soliciting sexually oriented messages or images.
- Dissemination or printing copyrighted materials (including articles and software) in violation of copyright laws.

Johnson Controls' policy, which is awaiting possible revisions and executive approval, was prompted by "the explosion of user interest in the Internet," said Thomas McCullough, project leader for electronic messaging.

Employers are concerned about a variety of legal entanglements such as employees' downloading copyrighted software without authorization or sending flaming E-mail messages that could lead to charges of libel or harassment (CW, Feb. 13).

A big fear is that outsiders will view an employee's posting as an official company statement. This could open the door for a harmed party to file suit against both the individual and his employer.

Joseph Rosenbaum, a technology lawyer in New City, N.Y., said firms can help insulate themselves by answering three simple questions: Is there a guideline? Do employees know about it? Is it enforced?

Making an effort to enforce such policies is important if a court is to take usage policies seriously, legal experts agreed. "If it only exists on paper, without any record that it is reinforced with spot checks and action on complaints, I'm not sure it will mitigate the damages," warned Neal J. Friedman, a telecommunications attorney in Washington.

At Eastman Kodak Co. in Rochester, N.Y., E-mail abuse is rare, but there have been some internal investigations, Robert L. Mirguet, an information security manager, said at a recent conference. "Posting information on [Internet] newsgroups is becoming a problem now because it's going out there with a Kodak address on it, and people get the [wrong] impression that the opinions reflect Kodak's opinions," he said.

When a new Internet account is switched on at Baxter International in Deerfield, Ill., the user automatically receives an E-mail message reiterating the company's policies regarding appropriate use.

The message includes a warning not to use the Internet to transmit sensitive company documents or data. Automating the delivery of the E-mail policy, which was updated six months ago to include Internet E-mail, was necessary because Baxter is preparing to offer Internet access to a larger number of users.

Other companies such as Deloitte & Touche and Monsanto are in various stages of writing E-mail usage policies.

No one solution

Liability for employee misbehavior stems from a body of corporate law called the "law of agency." It holds that employers are liable for employee deeds if the employee is acting as an authorized agent. The principle also covers job-related actions that appear to outsiders to be authorized.

Many Internet users include a disclaimer when posting to newsgroups saying they do not speak for their employer, but that is only a partial solution.

"The disclaimer will be just one factor that a court will look at. It can't hurt, and it might help, but corporations shouldn't get a false sense of security," said Dan L. Burk, an expert on cyberlaw at George Mason University School of Law in Arlington, Va.

Employees chattering in cyberspace might be better off avoiding all mention of their employer unless they have the same kind of management clearance they would need to write a press release, suggested Eugene Volokh, a law professor at the University of California at Los Angeles.

Chase Manhattan in New York has a new Internet policy that makes the same point, said Steven Lutz, manager of information security and risk management. Information posted on behalf of Chase must be cleared by the corporate communications office and personal messages must state that the views expressed are not those of Chase.

At Johnson Controls, the draft policy not only requires a disclaimer but spells out exactly what should be in the employee's E-mail signature: the person's name, Internet address and telephone and fax numbers.

Oh, what a legal web we weave

The American Bar Association will unveil a World-Wide Web site at the end of the month. It will be packed with association information and provide links to legal resources elsewhere on the Internet.

The site, as yet unnamed, will be open to anyone, although the association is considering ways to create closed areas for its approximately 370,000 members.

Ironically, because the Web page will not include any new editorial material, its designers saw no need to check its content with the association's legal counsel. — *Elisa Booker*

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DEC avoids Notes face-off

Analysts laud Version 3 of LinkWorks groupware as tour de force

By Neal Weinberg

The latest version of LinkWorks, Digital's Equipment Corp.'s object-oriented groupware, is a technological marvel that could give industry-leading Notes a run for its money, according to enthusiastic analysts.

But Digital apparently prefers to market LinkWorks as an enterprisewide workflow framework targeted at specific vertical industries.

Tom Austin, research director at Gartner Group, Inc. in Stamford, Conn., called LinkWorks Version 3, which will be unveiled Wednesday at GroupWare '95 in Boston, "a technological tour de force." He said Digital should challenge Lotus Development Corp. head-on.

"It's an awesome system," agreed Tim Sloane, director of messaging applications and services at Aberdeen Group in Boston. "Their dilemma is going to be purely marketing the product."

Michael Frow, vice president and chief credit officer at Bank of Montreal's Chicago office, has been using LinkWorks since its earliest incarnation three years ago. He installed Version 3 last weekend.

Frow said LinkWorks has allowed him to re-engineer business processes at the $100 billion bank without changing the underlying melange of mainframes, servers, PCs, databases and networking software from various vendors.

The bank, which at one time had 44 separate databases, has been able to restructure information around customers rather than bank departments. Not only has the bank cut down the time it takes to process credit applications, but it has also helped employees be more creative in helping customers, Frow said.

But he remains one of a small number of LinkWorks converts in the U.S. The product is more popular in Europe, where it was first developed.

Digital's missing link

LinkWorks allows companies to do the following:

- Share information across multiple databases.
- Create protocols for reading, editing and managing documents.
- Design objected-oriented workflow procedures.
- Control the activities of numerous workgroups.
- Build customized, reusable business processes.

Notes comparison

Austin characterized LinkWorks as more sophisticated than Notes. Notes is an application and development environment, whereas LinkWorks is an open, object-oriented framework that manages multiple applications, including Notes. But will Digital "be pacifist, or are they going to fight?" Austin asked.

There will not be a direct fight, said Dilip Phadke, group marketing manager for workgroup systems at Digital. "LinkWorks is not a Notes killer," he insisted. "There is no head-on competition."

Phadke said LinkWorks offers "a higher level of integration" than Notes and is being marketed as a framework able to run an entire business in specific industries, primarily manufacturing and finance.

Nina Lytton, president of Open Systems Advisors in Boston, said the latest release of LinkWorks exposes the underlying object orientation, making it easier for businesses and third-party vendors to customize it.

GroupWare '95 exposes 'process paradox'

Groupware users looking for new directions might just find them at the GroupWare '95 conference and exhibition in Boston this week, where business process re-engineering and workflow will intersect.

Keynote speakers Lynn Knapp of the Coopers and Lybrand Advanced Technology Group and Peter Keen of the International Center for Information Technology will kick off the conference by exposing the "process paradox." They will address the question of why groupware tools that promise a competitive advantage by supporting business process re-engineering may offer significant benefits but often do not deliver bottom-line economic impact, according to show organizers.

Confirmed announcements include the following:

▶ IBM in Armonk, N.Y., will demonstrate business modeling technology, which it plans to make available later this year. Its services organization is using the software with its Flowmark workflow product, said Bob Schwartz, program manager for workgroup marketing in Somers, N.Y.

▶ Helosoft, Inc. in Los Angeles will announce commercial availability of WorkflowBPR 1.0. This Windows-based tool allows a single user to define business processes by capturing the activities, participants, resources and conditions of a process. Primary and alternative workflows can then be represented visually, aiding in analysis and redesign, according to the company. The product will sell for $2,495.

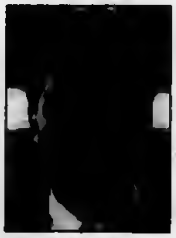
▶ Brainstorm Technologies, Inc. in Cambridge, Mass., will add to its suite of tools for developers working with Notes applications by announcing an alliance with Borland International, Inc. in Scotts Valley, Calif. Brainstorm founder Mitchell Liu said developers will be able to write applications using Borland's new client/server development tool, Delphi, that can access data in Notes databases.

▶ Trax Softworks, Inc. in Culver City, Calif., will release TeamTalk 2.0, a group discussion application. It reportedly allows topics to be broken into threads for better organization and has better navigation tools.

▶ HyperDesk Corp. in Westboro, Mass., will introduce GroupWorks, which dynamically lets users create ad hoc workgroups for projects. Billed by the company as "personal groupware," the desktop application lets users retain individual preferences but participate in a project team to share, coordinate and manage documents, schedules, assignments and tasks. It is aimed at workgroups of two to 15 people. GroupWorks will be available in the second quarter with a suggested list price of less than $299. — *Elizabeth Heichler*

Intersolv offers first 32-bit drivers for Win95

By Elizabeth Heichler



Consultant Randy Shull: *'The ODBC drivers provide a great solution to get to a variety of databases'*

Developers anxious to begin work on applications for Microsoft Corp.'s Windows 95 will soon have access to an important piece of client/server infrastructure: 32-bit software drivers that link desktops to relational databases.

The first 32-bit Open Database Connectivity (ODBC) drivers to hit the market will be available from Intersolv, Inc. through the company's Early Developers Program, said representatives of the Rockville, Md., vendor. The drivers will be generally available when Windows 95 ships.

"We have to start developing now for Windows 95," said Martin Seidell, manager of systems and technology at Metropolitan Life Investment Management Corp. in White Plains, N.Y. "We're really constrained by Windows 3.1, and we need to move to Windows 95."

The ODBC drivers from Intersolv will help Seidell quickly connect the extensive array of desktop applications the investment company uses with relational databases containing business information. That will minimize development time and increase his group's productivity, he added.

"The biggest headache I have is making sure that investment managers and portfolio managers — the people who deal with our customers — are working with accurate, up-to-the-minute data," Seidell said.

While Randy Shull, a consultant developing client/server applications for Bankers Trust Co. in New York, does not have an urgent need to work with Windows 95, he said he is looking forward to the 32-bit ODBC drivers from Intersolv because they will boost performance for Windows NT applications. "The ODBC drivers provide a great solution to get to a variety of databases. It makes our life easier. It's a layer we don't have to get into," Shull said. Although he said the bank is still happy with Windows NT, it may begin developing applications for Windows 95 toward the end of June.

Intersolv expects most participants in the Early Developers Program to be software vendors, who are under pressure to support Windows 95 right when it is released.

Protoview Development Corp. in Dayton, N.J., is now readying a Windows 95 version of its development tool ProtoGen+ Client/Server Suite. Engineer Jeff Young said it will integrate Intersolv's new drivers.

Star search

"I'm not looking for Visual Basic and PowerBuilder people. I'm looking for people with a really strong understanding of programming to the Windows APIs," said Martin Seidell, a systems manager at Metropolitan Life Investment hiring Windows 95 developers. Rather than build desktop applications, Met Life's developers focus on middleware to link users to databases, he said.

Consultant Randy Shull at New York's Client/Server Engineering, Inc., will look for Windows 95 development talent around midyear for his client Bankers Trust.

"For Windows 95, I'm looking for much the same skill set, not so much knowledge of the operating system," Shull said. That skill set is "Visual Basic or PowerBuilder . . . with experience with ODBC drivers, some SQL experience, some report writing experience."

Big iron

CONTINUED FROM PAGE 1

ware, said Jim Cobban, chief designer for SNA products at Northern Telecom's Ottawa research center.

VTAM is used only in testing compatibility between Northern Telecom's products and IBM's devices, and the software chews up just a portion of the processing resources on a 3090 machine running the VM operating system, Cobban said. "But we're paying license fees for that based on having a very large-scale mainframe," he added.

MVS expands horizons

IBM plans this week to introduce a version of MVS with expanded Unix compliance and a built-in object class library. Expected to ship in late September, MVS 5.2.2 will qualify for XPG4 branding and include more than 90% of the Spec 1170 set of Unix application programming interfaces, according to an IBM official.

In addition to the cross-industry object library, the new release will have a bundled runtime version of IBM's SOMobjects for MVS object request broker. Distributed object support allowing objects to be shared across a network should be added next year, IBM said.

"Object-oriented technology looks like the wave of the future, and MVS has to get aboard," said Glenn Davis, an MVS system programmer at Seafirst Bank in Seattle.

Hewitt Associates LLC, a benefits consulting firm in Lincolnshire, Ill., plans to bring in a PC Server 500 S/390 to test the feasibility of shifting a pension statistics application off a VM-based Amdahl Corp. mainframe, said Cynthia Overby, the company's network manager.

That would free up the Amdahl system for MVS uses such as testing new applications, said Overby, who is a member of Share's board of directors. She noted, however, that a stumbling block could arise if mainframe software vendors do not lower their usual pricing for the hybrid machine.

Charles Lickel, vice president of business plans and systems architecture at IBM's System/390 division in Poughkeepsie, N.Y., said IBM is putting together a reduced software pricing structure for the server-based models. But other vendors "will have to price it as they see fit," he added.

Related chips

The board-level mainframe engine, codenamed P/390, uses a CMOS-based processor akin to the chip that IBM began shipping last year in a new series of mainframes. Lickel declined to specify the P/390's performance, but sources said it is expected to be similar to the 14-MIPS speed of the earlier chip.

However, throughput "will be very much gated by the I/O structure of the PS/2," Lickel said. As a result, the PC Server 500 S/390 will be limited to applications that do not impose heavy I/O loads. "It's not the type of thing that we expect to sell tens of thousands of," he said.

"It's not a mainframe replacement by any means because it just doesn't have the I/O," agreed Charlie Burns, an analyst at Gartner Group, Inc. in Stamford, Conn. "But it is a quick and dirty way to distribute an application without having to rewrite it, as long as it can run within the constraints of the box."

For the past two years, IBM has marketed a similar P/370 processor built around its older System/370 architecture in both the PS/2 and RS/6000 versions. But that device lacks support for MVS and has been sold on a low-key basis to OEM partners rather than to end users.

The P/390 processor will also probably be available in an RS/6000, at least for special bids, Lickel said.

IBM's PC Server 500 System/390 will include the following:

HARDWARE
- PS/2 with 90-MHz Pentium; P/390 board with CMOS-based System/390 chip

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PRICING
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HP lifts curtain on 64-bit chip, keeps mum on Intel project

By Mark Halper and Jean S. Bozman

Determined not to lose mind share in the processor game, Hewlett-Packard Co. last week provided a glimpse of its 64-bit PA-RISC 8000 architecture, which is still a year from delivery.

At the same time, officials at HP and Intel Corp. all but denied a wire service news report that said the results of the two companies' collaborative microprocessor development would reach the market in 1997 as Intel's P7 chip. That report was based on comments from Intel Chief Operating Officer Craig Barrett, who declined requests last week for further interviews.

In tune with others

In showing off the next step on its processor road map, HP is keenly aware that the 64-bit IBM PowerPC 620 and the 64-bit Sun Microsystems, Inc. UltraSPARC are due to ship in workstations and servers this year. But HP is betting that 64-bit operating systems will not be available right away.

"By the end of the decade, under 10% of applications will be 64-bit," said Larry Inman, HP's marketing manager of PA-RISC technologies. "End users don't see the value in it, and standards don't exist in the industry today that support 64-bit chips." He said HP and other vendors will jointly announce a proposal for 64-bit standards later this year.

Inman said HP will offer systems built on the PA-RISC 8000 early next year, although he declined to say whether the first systems using the chip would be workstations or servers. Andrew Allison, an independent consultant in Carmel, Calif., said the PA-RISC 8000 chip should be one of the Top 2 performing 64-bit chips in 1996.

Analysts noted that 64-bit chips can directly address more than the current 4G-byte limit for 32-bit systems and that a bigger address space will be critical for multimedia and imaging applications. A 64-bit chip is expected to allow large database searches within main memory.

Users said HP's 64-bit chip could help alleviate processing limitations. Jim Banach, assistant vice president of information services at California Compensation Insurance Co. in Rancho Cordova, Calif., said a more powerful processor will cut down on the amount of hardware for his top-of-the-line HP 995 environment.

Jerry Banks, an analyst at Dataquest, Inc. in San Jose, Calif., said that with the PA-RISC 8000, HP "could potentially take a leadership position" in the game of performance leapfrog. Digital Equipment Corp.'s 64-bit Alpha chip currently holds the lead.

Meanwhile, Inman suggested that HP's joint development with Intel is unlikely to yield any products for at least two chip generations.

Inman said HP will follow the PA-RISC 8000 with a model called the 8200 one year to 18 months after the 8000. He could not say with certainty whether the follow-on HP 9000 will be the HP/Intel chip, although he said it is sure to incorporate some Intel design contributions in parallelism. The 9000 will be ready "toward the end of the decade," Inman said, noting the 9000 may be a "placeholder" for the jointly developed chip.

Allison said HP and Intel are leaving themselves wiggle room in case their first attempt at a joint chip does not go as planned.

Performance boost

Hewlett-Packard last week began moving its latest microprocessor, the PA-RISC 7200, into its server line with the unveiling of a series of performance-enhanced HP 3000 proprietary machines. The boxes will also be upgradable to the PA-RISC 8000 when it becomes available early next year.

Sources said that by month's end, HP will introduce a 7200-based HP 9000 Unix series as well. A workstation series based on the chip is expected soon. The 7200 marks a leap in performance over its predecessors — the 7100LC and 7150 — through changes that include higher bandwidth, lower latency and more efficient cache management.

HP product manager Andy Jolls said the new HP 3000 9x9KS series doubles the performance of the 9x7 line it replaces in the middle of the HP 3000 collection. The vendor did not release performance benchmarks relative to other brands, however. Using an entry model HP 3000 918 as a comparison, Jolls said the 9x9 provides up to 11 times the performance of that machine.

HP achieved the performance boost by replacing the processor, doubling symmetrical multiprocessing support to four processors and widening the system bus. In other engineering advancements, the company boosted maximum memory from 768M bytes on the 9x7 to 2G bytes on the new system.

Users expressed their customary approval of the power advances.

"We have some development machines that are 9x7s, and there's some possibility we'll upgrade them" to 9x9s, said Jim Banach, assistant vice president of information services at California Compensation Insurance.

The 9x9 series requires the latest version of HP's MPE/IX operating system Version 5.0. It consists of the Model 959 running a single 80-MHz 7200 and four Model 959s running a 100-MHz version ranging from one to four processors.

Prices start at $84,580 for a 64-user license on the 959, including HP's Image/SQL database. A single processor 959 with a 64-user license and Image/SQL is $116,580.

— Mark Halper

Network tools

CONTINUED FROM PAGE 1

across an entire network or any selected network segment.

The same source said Make and CoroNet recently agreed in principle to a partnership deal that will bring their technologies together, through bundling or other means, to help users manage networked applications.

CoroNet Chief Executive Officer Pierre De La Salle confirmed that the two companies are negotiating, and there is a strong interest on both sides in a partnership.

Key piece of puzzle

Analysts said application management is the missing piece in today's network and systems management platforms.

"Ultimately, network and systems management boils down to applications and why they behave the way they do," said John Rymer, an analyst at Patricia Seybold Group in Boston.

With CoroNet's CMS, he said, users get a high-level view of "conversations that an application has with resources across the network, including routers, links and servers." Network management platforms such as Hewlett-Packard Co.'s OpenView "can't really tell you what's happening with applications. When an application breaks, they immediately dive down into the links," Rymer explained.

In the future, application management tools may help users directly compare the performance of competing applications. "Users could say to vendors, 'Look, your app is a pig. It's chewing up incredible amounts of resources and it's slow, and I have the evidence right here,' " Rymer noted.

Merging ahead

The convergence of network and application management tools will provide the following:

- Real-time monitoring of the way applications use network bandwidth.
- The ability to compare different applications' response times across the same network link.
- The use of application libraries, analogous to hardware device libraries, to help users model how specific applications behave on networks.

Users hailed the ability to watch how networked applications behave.

"We have a lot of customers that want to explore the potential impact that specific applications will have on their networks," said Mark Rodford, a network development manager at Bell Canada in Toronto and a NetMaker user.

Instead of making decisions on a "best guess" basis, he added, the Make tool "can do a harder analysis and say this application is or is not going to [negatively] affect your network."

"What matters to users is how business applications are running, and [CoroNet's CMS] gives us a feel as to what users are experiencing at the application level," said Alan Uhlemann, an information systems architect at a major West Coast pharmaceutical company. "It looks like this tool will give us a heads-up long before users call and say an application is slow."

CMS also will be valuable in maintaining service-level agreements with end users who have been guaranteed a certain response time for a particular application, Uhlemann added.

But one CMS user asked for additional functionality to aid in capacity planning.

"Most new applications are replacing existing ones, and we want to find out what the historical utilization is of an application on the network," said Andrew Kamin, head of KPMG Peat Marwick LLP's San Francisco enterprise networking group and a beta user of CMS.

While CMS does look at network application use, Kamin said it "doesn't do a very good job of plotting that over time." He added that CoroNet plans to remedy that problem in the next release of CMS.

Microsoft, Intuit trudge forward

Intuit, Inc. last week said it will provide free revised versions of its TurboTax and MacInTax tax packages to fix errors that occur in some tax calculations. The company said less than 1% of users are affected but has set up a toll-free telephone line — (800) 224-0948 — to handle calls.

Separately, Intuit has delayed until May 30 the date by which its acquisition by Microsoft Corp. needs to be approved by shareholders.

In another legal arena, a federal court issued a temporary restraining order to Apple Computer, Inc. that forces Microsoft to stop distributing allegedly infringing code in its Video for Windows Developers Kit 1.1D. Microsoft said it will begin shipping new kits with replacement code shortly.

Also, in unrelated news, both the server and workstation versions of Microsoft's Windows NT 3.51 for the IBM and Motorola, Inc. PowerPCs entered beta testing recently. *— Stuart J. Johnson*

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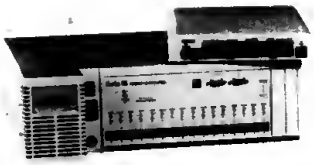

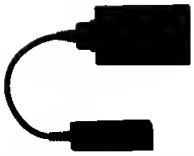

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Cairo to 'Avail' itself of storage management

By Tim Ouellette

Users may get a better look at what hierarchical storage management (HSM) can do for PC LANs with the release of Cairo, the next generation of Microsoft Corp.'s Windows NT. Avail Systems Corp. in Boulder, Colo., has agreed to provide HSM functionality that will be embedded in the operating system.

Avail said it will port its current NetSpace HSM product for Novell, Inc.'s NetWare LANs to NT later this year.

The NT features will be so basic, Avail's product will be positioned as the upgrade path for HSM on NT LANs.

HSM software automatically moves less frequently used files from primary storage on a server to secondary optical or tape-storage devices that are less expensive. The software also lets users directly access these files without waiting for support personnel to restore an older file from primary backup.

The Microsoft/Avail pact helps draw attention to a market that is still in its infancy. "With Microsoft coding to Avail's product, you have a reliable HSM standard," said Robert Wight, president of Avail. "This is something worthy of spending the time to evaluate."

While most mainframe systems users regularly use HSM, analysts said the PC LAN market needs to be educated. HSM will be a viable option for storage management when administrators recognize "that the cost of managing storage is more expensive than just purchasing a disk drive, and that the people cost of managing networks is far greater," said Paul Mason, an analyst at International Data Corp. in Framingham, Mass.

Stan Sorensen, a product manager in Microsoft's Business Systems division, said users have asked for native storage management tools for Cairo to help them move from mainframes to distributed environments.

Storage tip sheet

Administrators should evaluate the following when considering HSM:

- High network operating system memory to service disk drive storage, as opposed to tape or optical media
- Bus bandwidth
- Backup hardware
- Labor costs associated with managing file backup and restore

Source: International Data Corp., Framingham, Mass.

Port support

The native HSM functionality in Cairo will provide support for only one layer of storage and one storage device. For users who want more functionality, Avail's NT port will add support for multiple devices and layers. It also will work with the data stored in the existing devices and provide services for a variety of servers, including NetWare servers.

Because Cairo will feature an object-oriented file system, future Windows NT servers will be able to migrate objects within a file separately from the file itself, saving both time and LAN bandwidth.

But will basic functionality give users a large enough taste of what HSM can accomplish?

David Cappuccio, vice president and research director of network technologies at Gartner Group, Inc. in Stamford, Conn., predicted more users will want HSM with more than one tier. A better alternative for Microsoft would be to bundle the full Avail NetSpace for NT product in Cairo, he said.

He added that many users would like HSM to be combined with backup rather than made available as an add-on product. Currently, backup vendors Palindrome Corp. and Cheyenne Software, Inc. provide integrated backup storage and HSM products for NetWare and plan to release NT versions.

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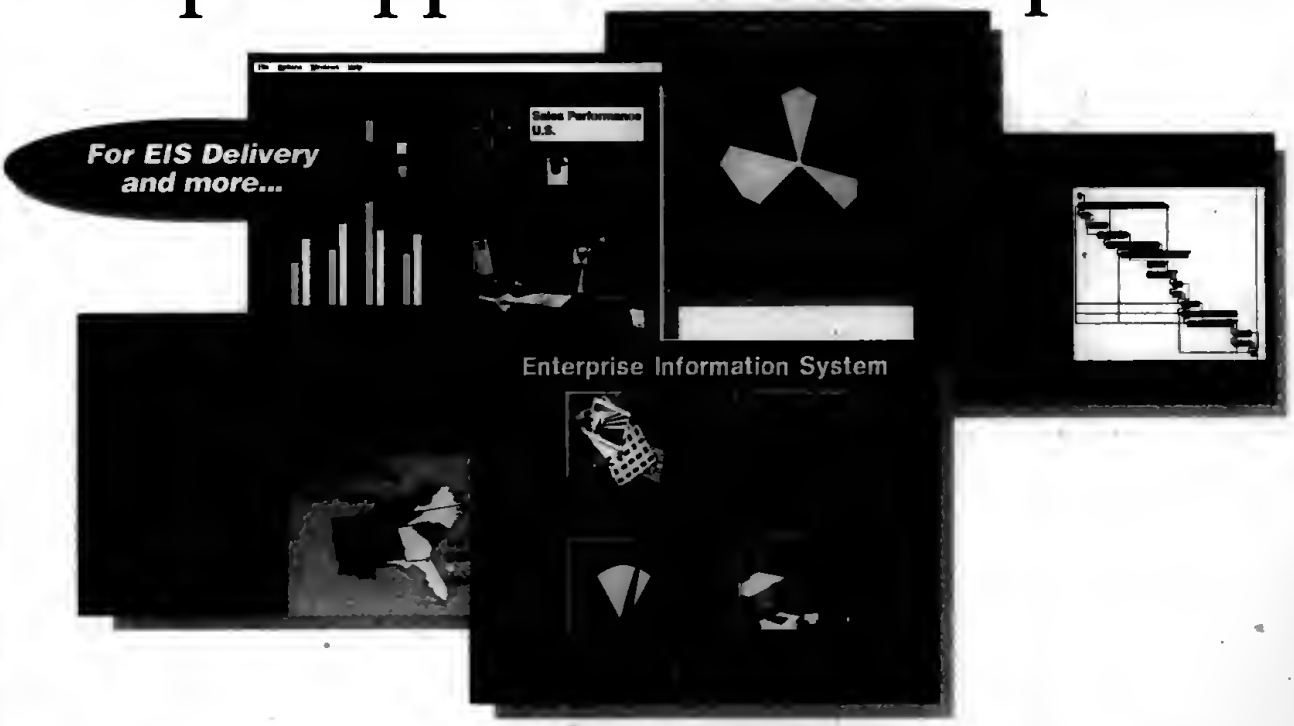

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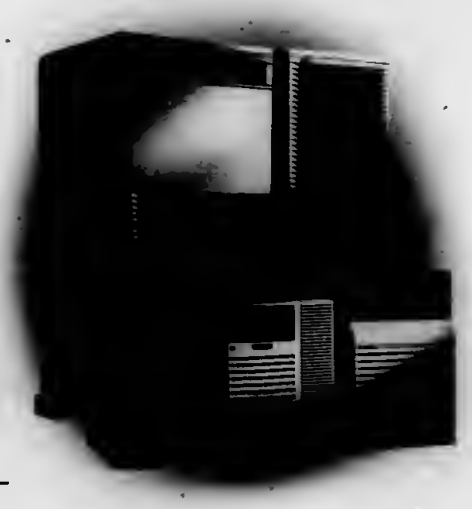

Baan's manufacturing applications go graphical

By Rosemary Cafasso

Baan Co. is emerging as the dark horse that could snag a lead position in the client/server applications market.

This week Baan will make its oext big push for manufacturing customers with the launch of Triton 3.1, a set of manufacturing and financial applications that will include a graphical user interface (GUI) for the first time.

Initial support for Triton will he available for Windows-based clieots and Unix-based Motif front ends.

Founded in Ede, the Netherlands, io 1978, Baan recently opened a U.S. headquarters in Menlo Park, Calif. While virtually unknown in the U.S. market a year ago, the vendor has recently grabbed several high-profile accounts from bigger rivals such as SAP AG and Oracle Corp. Receot customer wins include The Boeing Co., Northern Telecom Ltd., Snap-on, inc. and Allied Signal, Inc.

Baan also competes with manufacturing and financial software providers such as Computer Associates International, Inc., Dun & Bradstreet Software, Marcam Corp., J. D. Edwards & Co. and Ross Systems, Inc.

Customers and industry analysts said Baan's selling points are a full-blown client/server implementation, a suite of applications and a long history in the manufacturing business.

With the addition of Release 3.1, Triton uses a three-tiered client/server architecture. The design includes separate data management and application logic on the back-end server, with presentation services managed by the clieot.

Among other things, this design reduces network traffic because the applicatioo logic no longer sends instructions to the client.

"It waso't as much the functionality that really sold us, but the business concepts they embedded in the software," said Steve Feller, a procurement specialist at Boeing in Seattle. Boeing plans to eventually support 15,000 coocurrent users oo Tritoo.

Big on Baan

Erik Keller, an analyst at Gartner Group, Inc. in Stamford, Conn., said he expects Baan to he a major client/server player. The firm employs 1,000 employees worldwide, up from 800 last March.

"They understand how to build complex systems," Keller said. "They've been able to grow and become more sophisticated."

Kenneth Senn, a project leader in the laminate systems business unit at Allied Signal in LaCrosse, Wis., said his company recently selected Baan over SAP and Oracle beeaose it had more "deliverable functionality."

"We wanted an integrated suite for manufacturing," Senn said. "Their dynamic scheduling and distribution requirements planning were very important to us. The others either weren't ready or were going to provide it through partners."

The introduction of Triton 3.1 is considered a key step for Baan, in part because the GUI will replace a character-based front end that was so "homely... only a mother could love it," quipped Bruce Richardson, vice president of research at Advanced Manufacturing Research, Inc. in Boston.

Scheduled to ship this month, the release is a quick follow-up to Triton 3.0, which was rolled out at the end of 1994. Triton 3.0 included several functional upgrades, including multisite support and a set of financial modules.

In addition to the GUI support, Triton 3.1 will come with boosts to the core clieot/server architecture, said Ian Williams, director of product marketing. The company redesigned the presentation services as separate code from the application logic sitting on the server.

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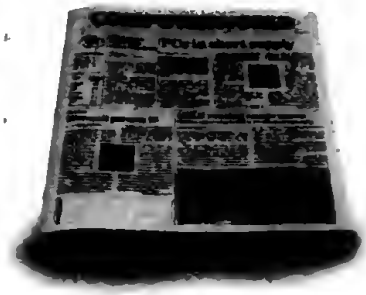

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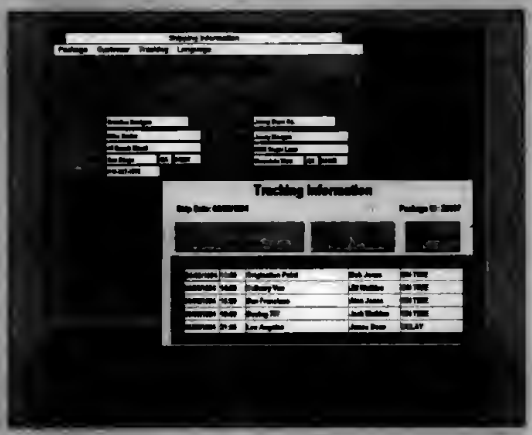

Application developers who have moved to graphical development tools are learning a painful lesson: while prototyping is fast and easy, it's another thing to try to deploy enterprise applications.

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ITT Hartford puts pen to work

Fujitsu pen-based system improves efficiency, reduces clerical costs

By Michael Fitzgerald

One of the longest-running pen-based system pilots has finally gone live.

ITT Hartford Insurance Group in Hartford, Conn., began looking into pen-based computing in 1989 only to encounter various waves of immature technology, incomplete vendor offerings and high expectations from users. The company has survived those challenges and expects to outfit all of its 342 risk control workers with pen-based systems by year's end.

Previously, risk control workers were not automated. Their work — helping large purchasers of insurance reduce potential liability — was done manually.

ITT Hartford began piloting its pen project in 1992. After several false starts, it spent a significant amount of time waiting for a workable product.

"If I had thought it was going to take this long, I wouldn't have come in from the home office" to implement it, said Wayne P. Warwick, director of systems development and loss control, referring to the $2.5 million project's gestation period.

The long pilot involved several factors including the following:

- Underpowered pen hardware and poorly designed software that focused on handwriting recognition.
- Problems deciding how best to use the technology.
- A major enterprise infrastructure shift that affected the potential for the project's rollout.

"Our businesspeople had to ask what was appropriate for our technology, and that used up '92, '93 and '94," Warwick said. The need for better pen technology and a complete shift in ITT Hartford's enterprise computing structure slowed the process.

ITT Hartford uses the Stylistic 500 pen-based system from Fujitsu Personal Systems, Inc. in Santa Clara, Calif., as a desktop. Each employee gets a monitor and an external keyboard, and each loss control employee gets a software suite that includes Microsoft Corp.'s Office, Lotus Development Corp.'s CC:Mail, Delrina Corp.'s WinFax Pro and Aha Software, Inc.'s Inkwriter. Shiva Corp.'s LANRover E. is used for connectivity.

"It's the world's most expensive yellow pad" of paper, Warwick joked. But it will pay for itself in reduced clerical costs, he added.

"What we're buying right now is the communications," Warwick said. With computers, risk control reps eliminate the need to dictate reports to stenographers.

So far, one office with 11 workers uses the system. Next Monday, two more offices with another 60 people will receive the system. And by October, 85% of the risk control workers are expected to use the pen-based system.

ITT Hartford's Wayne P. Warwick *is glad to have a pen-based computer in hand after a six-year pilot*

ITT Hartford's project is the type of undertaking pen-based technology was supposed to serve when it was touted as the hottest thing since sliced bread and before it turned into burned toast.

"It's a 'check the boxes, don't work with handwriting' application," said Andrew M. Seybold, editor of the "Outlook on Computing and Communications" newsletter in Brookdale, Calif.

Warwick said the long haul has been worth it. "I'm starting to feel pretty good that we're going to be delivering benefits that I know will accrue from this system to my customers," he said.

But down the road, hardware upgrades could be dicey. Few hardware makers are manufacturing pen-based systems larger than personal digital assistants, and one of them, Toshiba America Information Systems, Inc., has scaled back its pen-based business.

Packing it in

Fujitsu added wireless communications last week to its 2.8-pound Stylistic 500. One version will contain a Proxim, Inc. RangeLAN2 adapter. Data transfer rates can equal 1.6M bit/sec. at distances of up to 500 feet indoors and 1,000 feet outdoors.

Lotus suite delivers runtime version of Notes

By Rosemary Cafasso

Lotus Development Corp. in Cambridge, Mass., is expected today to launch a new version of NotesSuite, its workgroup and desktop applications bundle, that will contain the long-awaited runtime version of Notes.

NotesSuite: Desktop Edition for Windows will include the latest desktop applications, packaged as SmartSuite 3.1, integrated with a slimmed-down version of Notes. This Notes version does not have application development functions but can be used as a basic platform to run Notes applications.

Worth the wait

The runtime version of Notes was announced in January as a separate product and began shipping in February for about $155 per user.

"It brings the price down, and we've been really waiting for it," said Lew Davison, division director at the Missouri Department of Transportation in Jefferson City, Mo., of the NotesSuite: Desktop Edition offering.

"Up until now, we've had to put in developer capabilities with all Notes clients and with NotesSuite," Davison added. "This gives us the capability to target our developers differently than our business users. That's a big plus."

Davison purchased about 800 copies of NotesSuite, which was introduced in late 1994 with complete Notes capabilities. Last week he said he could expand NotesSuite to another 3,000 end users now that a runtime version is available.

At $399 per user, in volume purchases of 50 or more users, NotesSuite: Desktop Edition is about $100 cheaper than the full-blown NotesSuite.

Data General plays catch-up with imaging strategy

By Neal Weinberg

Although late to market, Data General Corp. is moving aggressively into the imaging business with a catch-up strategy that bundles existing technology and sells it to open systems users with large databases.

Last week, DG created a separate imaging business unit headed by William Zastrow, a five-year DG veteran with 20 years of software marketing experience. The Westboro, Mass.-based company will come out with a new version of its AV Image software next month.

The creation of the separate business unit is significant because it shows DG is serious about selling imaging software beyond its installed base, said David Yockelson, program director at Meta Group, Inc. in Stamford, Conn.

"They are viewed as a latecomer," said Michael Goulde, an analyst at Patricia Seybold Group in Boston. "But in some ways that's an advantage."

Instead of investing in developing its own technology, DG essentially acted like an integrator, selecting top technologies from a variety of different companies, including two British firms, Staffware Corp. and Trimco.

DG drove hard bargains with the smaller software companies, offering Staffware, for example, the opportunity for high volume sales in the U.S. in exchange for a deeply discounted price. That allowed DG to keep the total cost of the package down.

Goulde said DG also made a smart move by taking an open approach. Customers can use Windows-based PCs as well as databases from Gracle Corp., Sybase, Inc. and Informix Software, Inc., plus servers from IBM, Hewlett-Packard Co., Digital Equipment Corp. and Sun Microsystems, Inc.

Reducing costs

One of DG's users is Brigham Young University in Salt Lake City, which has taken its student financial aid and admissions records — some 1 million documents a year — paperless with a DG imaging system.

Roger Goodrich, assistant dean of admissions and records, said the project has been up and running for about a year. So far, the 30,000-student university has been able to eliminate eight full-time people who filed and retrieved documents, Goodrich said.

The university plans to eventually bring imaging technology to the billing and financial record-keeping functions as well, he added.

William Zastrow *must overcome late entry to imaging market*

Thomas Koulopoulos, president of Delphi Consulting Group in Boston, said DG is skipping the low-end commodity part of the market and targeting large enterprise applications.

"They have to work hard to overcome the fact that DG is not perceived as a leader in workflow imaging," Koulopoulos said. "They don't have immediate name recognition" like industry leader FileNet Corp. in Costa Mesa, Calif.

That was not an issue for Dona Ana County in New Mexico, however. The county is now scanning all of its clerk's office records — from marriage licenses to property deeds — into a DG imaging system that can be accessed by court personnel, ordinary citizens and local title companies from PCs in their offices.

Peter Cooper, information systems director for the county, said the system has allowed the fast-growing county to avoid hiring extra people. And it has improved efficiency because the clerk's office does not have to send copies of documents to other county agencies, and everyone on the network can access documents more easily.

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Combines high-performance compiler, visual environment, reusable components, and scalable database tools	✔	–	–
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Client/server version available	✔	✔	–

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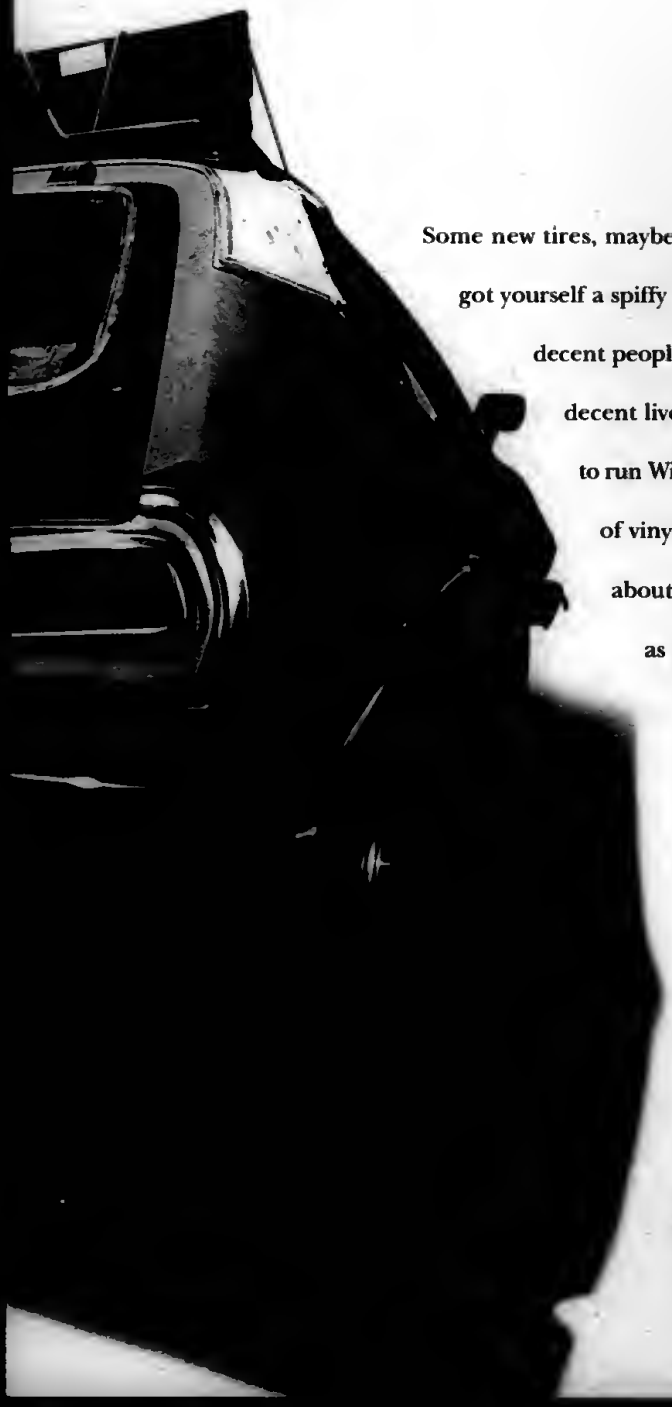

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Briefs

Piracy on the rise

The Software Publishers Association (SPA) estimates that 40% of the business software worldwide in 1994 was pirated, a 14% increase over the previous year. The SPA estimated the global PC software industry lost roughly $8 billion in 1994 due to illegal copying of business application software.

NetWare 4.1 booms

Sparked by a big ramp in NetWare 4.1 shipments, Novell, Inc. posted earnings of $62 million in its first fiscal quarter, ended Jan. 28. Revenue rose to $403 million, a gain of 6% over the same quarter a year earlier. NetWare 4.1 shipments accounted for almost 30% of NetWare revenue for the quarter and are expected to be the lead source of NetWare revenue by year's end.

SHORT TAKES Marco Landi, most recently president of Texas Instruments Europe, is now president of Apple Computer Europe.... Visigenic Software, Inc. has promoted Mark Hanson from executive vice president of sales to president and chief operating officer. ...Martin Clague, general manager of client/server computing at IBM, and Douglas Solomon, director of corporate development at Apple Computer, Inc., have joined Kaleida Labs, Inc.'s board.... Chantilly, Va.-based Geneseo Corp. plans to acquire Harris Anacom Network Services, Inc. in Dallas.... Microcom, Inc. will enter the Integrated Services Digital Network market now that it has acquired Extension Technology Corp.... Silicon Graphics, Inc. plans to hire 3,000 employees during the next 18 months, increasing its current worldwide workforce of 5,000 employees....TGV Software, Inc. has announced an initial public offering of 2 million shares of common stock at $16 per share.

Netscape keeps on rolling

By Ellis Booker

James L. Barksdale bristles at the suggestion that his company "gives away" its wildly popular Netscape Navigator, a graphical browser for the Internet's World-Wide Web that lists for $39.

"It's only free for educational, nonprofit and evaluation use," said Barksdale, Netscape Communications Corp.'s chief executive officer and president.

Yet Barksdale's objection belies what many say has been Netscape's most canny move: Leveraging a free-for-the-taking piece of client software as a means of selling a server product.

Netscape sells two types of servers. The more expensive of the two, the Netsite Commerce Server, costs $5,000 and supports Netscape's Secure Socket Layer (SSL). The SSL module works hand in hand with Netscape clients to offer a secure environment to send sensitive data, such as credit-card numbers, on the Internet.

Some 2 million copies of the client software have been downloaded from Netscape's own site (http://home.mcom.com) since the product's commercial release on Dec. 15, 1994. The Navigator accounts for more than 75% of the browser traffic on the Internet, according to some Web site statistics.

Netscape Navigator *accounts for more than 75% of browser traffic on the Internet*

Netscape officials will not disclose how many supported copies of its browser have been purchased or how many servers have been sold. The company is similarly tight-lipped about the financial details of its recent deals with companies such as MCI Communications Corp., Novell, Inc., Digital Equipment Corp., BankAmerica Corp. and Delphi Internet Services Corp.

The deals range from ordinary distribution arrangements to more strategic alliances aimed at developing secure Internet-based commercial environments.

Formed last May by James Clark, founder of Silicon Graphics, Inc., the privately held Mountain View, Calif., company quickly wooed away Marc Andreessen and other developers of the original Mosaic code from the University of Illinois' National Center for Supercomputing Applications.

Yet Netscape's high-flying start hardly guarantees its longevity in the fast-paced world of Internet business, analysts cautioned. "I think they've done a terrific job out of the blocks, but this is a market where product life cycles and phases of market development are measured in days not years," said Don Gooding, a research partner at Accel Partners in Princeton, N.J.

Analysts say Netscape faces the following two challenges:

First, its SSL strategy pushes against a competing, open security standard known as Secure HTTP, which the World-Wide Web consortium endorsed.

A more serious worry is what Gooding calls "the arrival of the 800-pound gorilla" — Microsoft Corp.'s Windows 95 operating system. Expected in late summer, Windows 95 will include an Internet browser that uses Mosaic code from competitor Spyglass, Inc.

Spreading out

A new release of Netscape Navigator (version 1.1, the out in beta version today and commercially available in April, is an application programming interface for integrating third-party applications via Object Linking and Embedding/Dynamic Data Exchange on Windows, AppleEvents on Macintosh and X Events on Unix.

PC maker abandons commodities

As fortunes wane, ALR is betting future on high end

By Jaikumar Vijayan

Struggling PC maker Advanced Logic Research, Inc. is turning to the high end to save its bottom line.

Buffeted by PC price wars and almost completely shut out of the mainstream market by much bigger, mass-volume players, ALR had lost its luster as a fairly significant second-tier supplier. Though barely profitable today, the company is not in imminent danger of folding, analysts said.

To escape the "price war bloodbath" at the low end, the Irvine, Calif.-based vendor sharpened its focus on higher margin Pentium-based PCs and symmetric multiprocessing (SMP) systems, said David Kirkey, ALR's vice president of sales and marketing.

Short gain

In its last quarter, publicly held ALR eked out a profit of about $600,000 on revenue of $45.7 million. Revenue for fiscal 1994 totaled $183.4 million — an increase of 8.4% over the $169.3 million reported in the previous year.

With a product line that consists mainly of the Q-SMP series of multiprocessing servers and some high-end Pentium PCs — including the aggressively priced ALR Evolution series — the company's portfolio is decidedly different from its low-cost "commodity market" days. High-end ALR SMP systems typically start at over $20,000.

"Everyone knows what happened in 1992," Kirkey said. Stunning price cuts enacted by desktop leader Compaq Computer Corp. led to reactionary reductions from other key suppliers. "[Major vendors] moved into channels that we were in and generally created a whole lot of havoc" for us, he said.

"When the pricing umbrella collapsed in 1992, it took down several companies with it," said Eric Lewis, an analyst at International Data Corp. in Framingham, Mass. "It is to ALR's credit that they have survived."

That may be due in part to ALR's decision to no longer compete on price, Kirkey said. Now "we are getting to the safe ground," he said. Analysts said they support ALR's tactic of seeking solace in the higher margins offered in the server market, where the company is expected to regain some of the price flexibility it lost in the PC market.

Looking good

Also critical to ALR's survival may be the company's ability to innovate, analysts said. Though not a major player in either market share or revenue, ALR has gained a reputation for being fast to market with aggressively priced products that incorporate cutting-edge technology, analysts said.

These days, the company is trying to leverage some of that experience in the high-end business.

For instance, while vendors such as IBM and Hewlett-Packard Co. have only begun to announce quad-processor systems, ALR has been shipping the ALR Q-4SMP server — including a 100-MHz Pentium version — for several months now.

The company will continue to develop and market PCs, but they will be positioned more as client desktops for ALR servers, Kirkey said.

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Hackerama

Recently my 11-year-old fixed a vexing problem with the printer on our home system (vexing to me, anyway). I've always been amazed at his ability and willingness to root around my computer and fix things by intuition, while I'd attempt to plow through the manual.

"You're a technical whiz," I told him.

"Don't call me that," he replied, adding proudly, "I'm a hacker. That's what I want to be called."

I asked if he knew what hackers do. He did indeed. "They break into computers," he said.

For some reason I couldn't imagine him saying, "Call me a bank robber" or "Call me a pimp, drug pusher or embezzler." Yet somehow this romantic notion has developed that hackers have a kinship to every good bad guy Errol Flynn ever played, from Robin Hood to pirate Henry Morgan. The incident with my son highlights how this image has pervaded our culture.

That's terrible news for those responsible for maintaining the integrity of computerized information — people such as you. In the past, we've pointed out the grim reality that perhaps no system is hacker-proof. Now, evidence is mounting that the hackers themselves are being widely glorified.

No mistake about it — hackers are not people driven by altruism. They are not messing with your system to feed the poor, end racism, promote world peace or save the environment. Most are driven by an intellectual challenge they issue themselves.

They don't give a damn about the costs their crimes inflict on your company. So what if all business costs are ultimately borne by the consumer? They care only about their own misguided preoccupation.

Some hack purely for profit. As of this writing, my company is cooperating with federal authorities in an investigation of a recent hacking of our phone system. The hackers are believed to have operated a ring whereby phone time on purloined 800 numbers was sold to unsuspecting customers in the New York area.

The hacker subcult are, operating under its cloak of anonymity, sings the praises of its brethren's deeds. Nowhere has this act of arrogance and defiance been more apparent than in the case of Kevin Mitnick.

Arrested last month and charged with a string of computer crimes, Mitnick may well have profited royally from his actions. He wasn't out to save humanity. And if he's convicted, I hope he's given a prison sentence commensurate with his crimes. But in the online world, Mitnick is being lauded.

The specter of a long spell in prison is a proven deterrent to crime in general. Let's hope the courts don't share this view of hacker-as-hero.

For my part, I need to have a long talk with my son.

Bill Laberis

Bill Laberis, *Editor in Chief*
Internet: *blaberis@cw.com*

Real people vs. fake people

It was refreshing to read about "real people" ["A dose of reality," CW, Feb. 20]. Please keep reminding the industry that not everyone needs or wants the latest and greatest thing to hit the market. What we want are systems and products that do what they advertise.

Real people never bet their companies on the untried. We are mostly successful because we are state of the practice rather than state of the art.

Randy Meredith
Technical manager, IS
Southeast Michigan Council of Governments
Detroit

It's a good thing there are still some "fake people" in this industry. While your "real people" seem realistic about solving specific problems, they don't seem to understand that subtle changes in our technology landscape can provide significant opportunities to improve the way we work.

If everyone were a real person, the industry would lack the interest and resources to stimulate the development of horizontally applicable technology.

I certainly understand the necessity of risk management, but burying your head in the sand is hardly an effective way to discover new and better solutions to the same old problems. So I say three cheers for all of the fake people out there.

Barry Goffe
Platinum Software
Irvine, Calif.

Staying in-house

Oh dear, yet another opinion column written by consultants extolling the virtues of outsourcing ["The people cost of re-engineering," CW, Feb. 6]. "Many IS professionals are still trying to move from mainframe to client/server." Why is this? Is it because IS professionals are unwilling to make the move or because they are not given the chance?

Characterizing experienced IS staffers as irrational people who "don't want to adapt, change or reinvent themselves" is unfair. I know many ISers who are eager to make the change but are stuck in maintenance assignments. Outsourcing is no panacea. You may find a programmer who already knows C++, but how well does he know your business?

Paying for skills mastery and providing transfer options are certainly fine ideas. Let's just be sure we consider *all* the costs before writing off the in-house staff.

Elena Germanio
Sterling Heights, Mich.

Software AG fan

The article about the California State Board of Equalization/Software AG of North America project to revamp the California state tax system ["Software AG to revamp state tax system," CW, Jan. 30] included the following quote from Donald Feinstein, an analyst at Gartner Group. Feinstein says, "There's no question that Software AG has landed some big contracts, but most of the time they have been selling into their installed base."

What better endorsement for a company's product than to have its "installed base" continue to seek data processing solutions at its store?

I have supported Software AG products for about 10 years now, and I recently began using some more "modern" SQL-based products.

What a relief to drop back into a system where I can use the Natural programming language to perform my tasks. I can accomplish more in a couple of hours than in a couple of days with SQL.

Just because a product is the latest doesn't mean it's the greatest.

Charles E. Adams Jr.
Adams Consulting
Douglasville, Ga.

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Public infostructure needs rethinking

John Diebold

The world's informatioo infrastructure requires refurbishing, hut it needs rethinking even more. The private sector and the military have been transformed hy information technology, hut most public services — from health care to transportation — continue to evade progress.

Areas that must be addressed include the following:

- **Political innovation.** We need political innovation to devise more effective public/private partnerships. Privacy, security and access problems must all be addressed. Politically, one has to provide access to certain services to people who cannot pay for them. How much access should they have, and how do you provide it? Standards, rights of way, radio spectrums, frequencies and liability questions are some issues that must be resolved.

Diebold Institute studies indicate that we need a "facilitating organization." This is one that is part government, part private sector and is charged with clearing away the underbrush. It is a political move, hut it also must be sponsored and pushed hy business. Bureaucracies don't usually conceive radically new ways to meet needs. Politicians need help creating conditions that attract private sector capital. Many want to do this hut do not know how.

- **Financial innovation.** Both the U.S. and the European Union advocate private finance for infostructure. We need fresh thinking on how to accommodate different levels of risk and nontraditional types of risk. Throughout the history of using technology, the only known fact is that when people have a new technological environment, they do things differently. Who will use the new systems? How much will a user pay for information? What will they use it for? Those unknowns call for demonstrations, models and experiments.

Instead of continuing to replicate early 20th century system ideas, we need services that are more attuned to individuals, values and needs.

There is a strong argument for some public/private risk sharing during the early years of new types of infostructure. We need financial innovation that encourages government to share the risks and involves corporate funding. One way to equalize the cost of some of these projects is to have tax-free securities or tax holidays on profits.

- **Innovations in research.** Understanding the economics of infostructure requires public policy research. It is common sense that a well-conceived infrastructure allows a society to improve productivity, but there is little analysis to prove this. Research should address issues such as which conditions encourage and which inhibit the development and deployment of new forms of infostructure.

Instead of continuing to replicate early 20th century system ideas, we need services that are more attuned to individuals, values and needs. This is a public policy research area that must be included in further technical work in this field.

- **Organizational innovation.** When technology is used to deliver public services, it is used on a departmental basis. This occurs in all forms of infostructure, from health care to transportation. But to revolutionize delivery, the technology should cut across lines and provide an integrated infostructure service.

Global infostructure is achievable. If we want to enjoy the societal benefits of a 21st century infostructure, we need innovation.

Diebold is chairman of the Diebold Institute for Public Policy Studies, Inc. in Bedford Hills, N.Y.

Usage-based pricing: Where the action is

Esther Dyson

When my editors suggested that I write about an interesting new product, I couldn't come up with anything really exciting. Sure, every month we see better report writers, labor-saving asset managers, object-oriented database front ends and whizzy graphics packages, but there's nothing that really changes my view of the world.

In fact, the real action isn't in new products hut in new business models. It's how you define the product. An example is a new approach to delivering an existing product, an architectural computer-aided design package called ArchiCAD. The product comes from Graphisoft, based in Hungary and founded in 1982 by physicist Gabor Bojar. It is now the leading architectural CAD package on the Macintosh, both in units and revenue, and is heading that way on Windows.

The real action isn't in new products but in new business models and how you define the product.

One issue that has always troubled Bojar is ArchiCAD's high cost of $5,000 to $10,000. It's appropriate to the package's value and thousands of people pay it, but it's daunting to many prospective customers who could also benefit from the package.

The notion of free trials or "lite" versions didn't appeal to Bojar because they have the feel of cheap knockoffs. He didn't want to sell less of a product, but he wanted it to cost less for people who would use it less. That led to Graphisoft's trademarked PayPerUse scheme for usage-based pricing, where a customer pays by the hour.

PayPerUse begins with a $295 starter kit, which includes the software, a counter (which the software needs in order to run) and the first 50 hours of use. Users can order incremental time with a credit card, at $3.83 per hour, by phoning an 800 number.

The company has tested it on about 60 customers. Within three months, one-third of them have already become regular users and have generated follow-on revenue. The benefits include more than lower upfront costs: Light users pay less than they would for the full package. Heavy users ultimately pay more; presumably they are less price-sensitive people who depend on the software as a tool for their daily work. This has a certain equity to it.

Moreover, because revenue continues as customers use the software, the system provides an incentive for dealers (who get continuing commissions) to support their customers in using it. The whole system focuses on use rather than purchase.

From the customers' point of view, there's much less of a start-up investment and lower risk. Even nicer, the customer (frequently an architect or a design firm) can assign the costs to a specific project and bill to client in turn.

As I noted in an earlier column, the customer is paying for intellectual services or processes rather than intellectual property. Of course, it's being measured as time. Bojar, a scientist with a penchant for perfection, keeps trying to think of even better — or more relevant — ways to charge users, perhaps by designs produced, number of rooms created or even per dollar of real estate designed. He considers unit market share to be a specious measure and would prefer to quantify his success in terms of hours of use. It's certainly a better measure of value to the customer, which is what it's all about.

Dyson is president of EDventure Holdings, Inc. in New York. She welcomes readers' thoughts and can be reached at edyson@eff.org.

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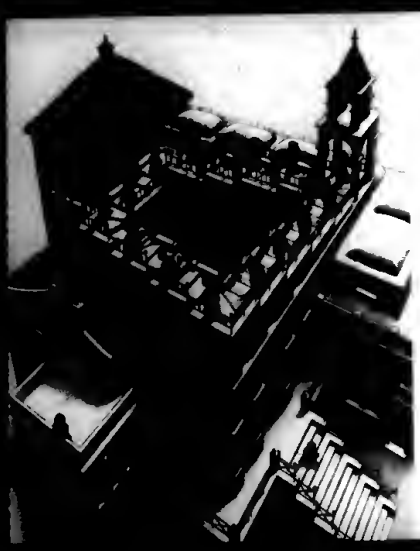

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Software distribution tools come of age

Users revel in cost savings and speed

closer look: Software distribution

By William Brandel

Normally it takes a few months and a concentrated study for users to realize the payback — if any — on a product they buy. However, that is not necessarily the case for electronic software distribution (ESD) products.

Take, for example, the case of Phil Schulte, network manager at Chicago & NorthWestern Railroad, Inc. in Chicago. The railway invested $14,000 in inventory management and software distribution products from Frye Computer Systems, Inc. in Boston. The payback was nearly immediate and has been manyfold.

"In the last manual software distribution we did, we had budgeted $23,000 for the man-hours involved to update the network drivers on the eighth floor," Schulte said. It took five people the better part of three days to upgrade 43 end users.

After installing the new ESD package, Schulte finished the remaining 31 desktops by himself. It took him six hours.

"It was like magic," Schulte said. "Boom, it's on the server, and whap, it's on the users' desktops. All it took them was two minutes to boot their system for the upgrade to be installed."

Wide appeal

Magic might be overstating the case, but users are finding that ESD technology is a solution to a problem that is only growing. Now that most ESD products have wide-area capabilities, users can install software at desktops in remote cities throughout their company. This was an option many would forgo without ESD.

ESD at the PC LAN level has been designed with users such as Schulte in mind. He works with three other network managers who oversee 900 desktops. Putting out fires takes up enough time, and deploying new applications — let alone upgrades and driver updates — has been a luxury the company could ill afford with its present staffing. You will hear no bad words about ESD in Schulte's corner of the midway.

Task force chairman Ki Wilson: *'We don't expect a one-size-fits-all solution now'*

And as software gets more complex, the need for upgrades and updates for interim versions of applications is more frequent. In other words, ESD not only addresses a problem but also allows users to accomplish things they could not do before.

Desktop distribution

ESD is not necessarily new to users. Many companies have used mainframe- and minicomputer-based facilities to distribute software throughout their sites. However, distributing software to PC desktops is new and represents the fastest-growing section of the ESD market, said Richard Villars, an analyst at International Data Corp. in Framingham, Mass.

"Users who have done ESD at the high end usually have very little understanding of the underlying processes involved with ESD at the PC LAN level," Villars said. "It's completely different."

However, users want it. According to a recent survey by Gartner Group, Inc., a consultancy in Stamford, Conn., more than 80% of users are interested in or actively shopping for ESD products. At the same time, less than 15% of these users are performing ESD at their sites today.

The disparity of these numbers has to do with the immaturity of the ESD market at the PC LAN level, said Chris Germann, a senior analyst at Gartner Group. With the exception of Novell, Inc.'s NetWare Navigator or Microsoft Corp.'s Systems Management Server, ESD products come largely from LAN utility companies such as Frye, McAfee Associates, Inc. and Symantec Corp. As a result, these products may strive to address enterprise-level problems, but they still behave like PC-based products. In other words, they are limited to the relatively small amount of intelligence that is built into PCs and PC-based operating systems.

For example, the ESD products on the market offer vastly different approaches to writing scripts. Scripts are an essential component of ESD because they determine how the products deliver the software, which PCs they deliver it to and which application they update. Some of the tools require specific scripting instructions, much like programming, while others use loosely defined parameters.

The scripting issue is a factor because desktop standards are still a goal and not a reality for many sites. Many sites run different versions of different drivers for printers or networks as well as different versions of applications or even Windows or DOS. To electronically distribute software to a large audience, the user has to write elaborate scripts that will address as many target users as possible.

"As products get more complicated, so do the installations," said Tim Littleton, systems analyst at Southern Company Service in Atlanta. The company uses McAfee's NetTools. "Using ESD still hasn't gotten us to the point where we save as much as we'd like because we still spend a lot of time writing the script."

Distribution tools, *page 42*

Electronic distribution software

Vendor	Product	Price
McAfee	NetTools	$2,95u for 100 users; $29 each for 250 users
Saber Software	LAN Workstation 5.0	$199 for documentation and media; $59 per node
Symantec	Norton Administrator for Networks 1.5	$65 per node for five licenses; $44 per node for 1,000 licenses
Novell	NetWare Navigator 3.0	$995 for 25-user version; $6,25u for 25u users; $15,000 for 1,000-user version
Microsoft	Systems Management Server	$649 for server license; $5u for each client license

On the docket

The following are some of the Corporate Association of Microcomputer Professionals' proposals for ESD:

- **Push vs. pull.** ESD products should include features that not only allow network managers to push software out to desktops but also enable certain end users to pull down software to their PCs.
- **ESD distribution list.** Determining who gets what version of what software is a key feature of ESD. The groupings should include user names or log-in identifications and logical groups.
- **Quality PC before distribution.** Criteria such as whether the user has enough hard drive space to accept an application, the memory to run it and the correct settings on system files such as CONFIG.SYS or WIN.INI should be discernible from an ESD console. Almost all of this criteria will be addressed by the Windows 95 registry.
- **Automatic suspension.** If the ESDsystem detects a problem with the PC's equipment, the software distribution is aborted.
- **Scripting features** that can be easily written or edited.

— William Brandel

Concerted effort

Both users and vendors have to address some fundamental problems to bring harmony in their ESD efforts.

- **Desktop standards.** The more homogeneous the desktop environment, the easier it will be to determine whether a certain driver or version of a product needs to be upgraded on any desktop. Standard desktop configurations would also greatly ease the effort involved in writing scripts.

Gartner Group estimates that if a company can distribute one software package to 250 nodes using one uniform script, it can save $50 per PC in labor hours from its ESD efforts.

- **Desktop software.** Unfortunately, desktop software was not designed with ESD in mind. This is especially true in Windows applications, which load different Windows files in different directories. For example, Dynamic Link Libraries are stored in the system directory, while .INI files are placed in the Windows directory. Users now must write elaborate scripts to ensure all the right software gets to the right place on the desktop or the LAN server.
- **Disconnected from systems management.** Many companies already have high-end ESD products that run with their IBM NetView or HP OpenView consoles. But like other PC LAN utilities, such as asset management or license management, these utilities do not run with the high-end consoles. As a result, centralized control of ESD is more difficult at large enterprises.

— William Brandel

Costs keep zoo IS chief with one foot in lion's den

By Michael Fitzgerald
NEW ORLEANS

The subject of the classic New Orleans tune "They All Asked For You" is a mythical local celebrity so well known that even the animals at the Audubon Zoo ask for him. The song could also be about Mark Andrews, director of information systems at The Audubon Institute. But in this case, it is the staff who does the asking.

"They do all ask for him," laughed Bill Kurtz, the institute's chief administrative officer, who hired Andrews in 1989. At that time, the Audobon Zoo became an institute and needed an IS director to run operations and administration. "We have him a tad overloaded," Kurtz admitted.

ON SITE

The Audubon Institute
New Orleans

Challenge: To handle business growth while keeping spending down.

Technology: Digi International add-in boards and peripherals to leverage older PC and server technology and handle additional users.

Results: Quadrupled the number of users while keeping IS spending flat.

That year the zoo was preparing for the 1990 opening of its Aquarium of the Americas. It now also operates a 2,000-acre breeding farm and related facilities and the Louisiana Nature Center. Attendance at the exhibits has more than quadrupled in the past four years. Andrews has the delicate job of supervising IS expansion at a nonprofit organization whose budget has tripled in size but has kept IS spending flat.

"We're not on the flapping edge of technology; we can't afford to be," Andrews said. "My basic rule of thumb is, I don't do things that are going to get me calls at night."

Kurtz is more blunt.

"For us, technology is a necessary evil. If employees could vote to do things on index cards, most would still do so," Kurtz said. "Mark's been able to do a hell of a lot for us. He's been invaluable to the institute."

Kurtz credits Andrews' IS efforts with helping keep hiring low and making workers more productive than they would be without technology. But Andrews has to get more from less.

In fact, most of the institute's workers do their work on dumb terminals that, until recently, connected to a Compaq Computer Corp. 80386-based DeskPro. The institute now has three new Pentium-based ProLiant servers.

The DeskPro was replaced by a 486-based Compaq SystemPro but was not retired. It is now the server for the aquarium's point-of-sale systems, and in its 4½ years of service has had only 30 minutes of unscheduled downtime, Andrews said.

More with less

Andrews has worked creatively in his budget, using add-in boards and other peripherals from Eden Prairie, Minn.'s Digi International, Inc. (formerly Digiboard) to expand the number of users a given server can support, splicing together code to keep applications running and adding surge suppressors to protect against nasty, system-burning lightning strikes. Despite his budget, Andrews helped make The Audubon Institute the first commercial user of Integrated Services Digital Network (ISDN) in New Orleans and is now installing fiber-optic cable.

The Audubon Institute's Mark Andrews *with elephants and a souvenir from his father's IBM days*

Animals off-line

The Audubon Institute's Mark Andrews says he does "the same old stuff" except "in a really cool place." Among the perks: petting Suri, the white tiger, refreshing in the elephant pool and going for a walk outdoors when he gets frustrated. "The animals don't have big egos, so you can't get mad at them."

"We got more bandwidth for less money than if we got 56K-bit leased lines," Andrews said of the move to ISDN.

While most users have monochrome, alphanumeric dumb terminals (read: cheap), Andrews is going graphical, thanks to price reductions and the chance to gain productivity. He is looking to install X Window System terminals and, in some cases, PCs.

But now, the people in the aquarium cashier's office are asking for him.

"He needs to install an upgrade for Carolyn," said Tot DiBenedetto, supervisor of finance. The system works slower than Carolyn Matthews, an employee in the finance office, would like. But DiBenedetto is a fan of the system and said it has improved in the past four years.

"He's responsive. You just sometimes need to light a match under him," DiBenedetto says.

Or cut his fiber-optic cables, which is what happened when a gas line to the zoo's new hamburger stand was installed. Andrews promises the upgrade but then has to head out to check the damage to his new project.

Microsoft tweaks corporate support program features

By Stuart J. Johnston

• Microsoft Corp. has adjusted features of its technical support offerings to make them more responsive to corporate needs. Enhancements include a new program that unifies support for a company on a worldwide basis.

The Premier Global Support program, which will allow corporations to consolidate support for Microsoft products worldwide under a single contract, will be available in July with limited availability in March. The program, which has a base price of $225,000, frees a multinational company from having to negotiate individual support contracts for each country in which it conducts business.

"We could use [Premier Global Support] NASA-wide with one coordinated contract," said Briscoe Stephens, coordinator for space sciences in the Advanced Scientific Information Systems group of NASA in Huntsville, Ala.

Stephens also applauded another feature of the Premier Global Support program: its annual support plan review. This feature includes two site visits to help customers design, evaluate and implement plans to better support users.

"[One] thing it would do for us is give headquarters an active overview of [what] the various [space] centers are doing to improve interoperability. In terms of a global account, that would be fantastic," Stephens said.

Microsoft has modified its Premier Support plan, which has a base price of $25,000 per year for 24-hour, seven-day-a-week service; users can now call in up to 150 "incidents" a year. Under Microsoft's definition, an incident is a single problem, no matter how many calls it takes to resolve.

Microsoft's corporate support offerings include the following:

Premier Global Support

- Single contract (Base price: $225,000 per year)
- Designated support team (contact people)
- A multinational company can have 10 support contact people worldwide
- Additional contact people are $10,000 each
- Two on-site visits for planning per year from Microsoft
- Annual support plan
- Unlimited incidents (800 number where available)
- 7-day/24-hour service

Premier Support

- $25,000 per year allows for 150 incidents per year (additional incidents cost $1,500 for 10)
- Designated support team
- Annual support plan
- 7-day/24-hour service

Support Consulting Line

- $190 per hour, one-hour minimum, to reach a Microsoft consultant
- Discussion of issues that go beyond technical support

"We're moving to a usage-based pricing model," said Deborah Willingham, Microsoft vice president of support, noting that Premier Support used to cost $20,000 to provide support for 10,000 product licenses. "We had feedback from our large accounts that it was hard to determine deployed base."

The aim is to provide corporate support on a more flexible basis, she added. However, Premier Global Support is not limited to a given number of incidents.

The changes also enable companies that operate on multiple shifts to designate contact persons for each shift who will have access to Microsoft support personnel, Willingham said. That means that a multinational company with a Premier Global Support plan, which limits the number of contact persons inside the customer company to 10, would actually be able to designate 30 contacts if it operated on a three-shift basis — i.e., 10 contacts per shift.

A second program, the Priority Support plan, will also be offered in three options. These will range from Priority Comprehensive Support, which will cost $3,995 for 35 incidents per year with support for desktop applications, operating systems, development tools and business systems, down to Priority Desktop Support, which will cost $395 for 35 incidents per year on desktop applications only.

With these programs, Willingham said, a customer can call in on a 24-hour, seven-day-a-week basis. Support for desktop applications between 6 a.m. and 6 p.m. Pacific Daylight Time during weekdays is still free. One other service is the Support Consulting Line, which costs $190 per hour with a one-hour minimum and enables customers to purchase remote consulting services on an hourly basis.

Macintosh?

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Distribution tools

CONTINUED FROM PAGE 39

Without question, a standard desktop throughout a user site would be ideal for ESD. But then, having some standards for ESD products would not hurt either. With this in mind, the Software Licensing Task Force of the Corporate Association for Microcomputer Professionals (CAMP) released working proposals for ESD products (see story page 39).

The goal of the 20 proposals for ESD products is twofold. The first is to give CAMP members a tool for evaluating ESD products. The second is to let vendors and CAMP members know that vendors are aware of what has been proposed for these products.

> "As products become more complicated, so do the installations."
>
> *— Tim Littleton, systems analyst, Southern Company Service*

"We don't expect a one-size-fits-all solution now," said Ki Wilson, task force chairman and microcomputer manager at Stone Container Corp. in Chicago.

The proposal, developed by CAMP's Software Licensing Task Force, should not be taken lightly by vendors, analysts said. The last manifesto the group issued was very effective in altering many vendor licensing practices.

Currently, none of the products meet CAMP's 20-point wish list, Germann said.

"CAMP is saying, 'We want the moon, and this is our picture of the moon,' " Germann said. "And now users can say to vendors, 'Your products are either orbiting the moon or have not taken off from earth yet.' "

Of the 20 points outlined by CAMP, the top requirement is for ESD packages to include usable and comprehensive installation, configuration and scripting capabilities, he said.

Vendors on the fence

Most of the vendors say they will try to comply with the CAMP proposal. However, others say the level of multiplatform support of ESD that CAMP calls for runs contrary to the momentum of certain markets.

For example, CAMP calls for network operating systems to include support for Novell's NetWare, Microsoft's Windows NT Server and LAN Manager, IBM's LAN Server and Banyan Systems, Inc.'s Vines.

"We now support Vines and PC LAN Server in products we sell today," said Russell Frye, president of Frye Computer. "But I can't guarantee that I will do it with all our future products. You can't support everything forever and expect to stay in business."

However, a new product on the market may help mitigate many of the client issues of ESD. Microsoft's Windows 95 will include a registry that will store the basic information required for an ESD tool to determine which version of what software now runs on a desktop. This feature must now be built into each ESD product, and as is the case throughout the ESD market, none do it the same way.

HP sparks interest in infrared

New LaserJets will become wireless

By Michael Fitzgerald

■ The first Hewlett-Packard Co. printer to come with infrared data transfer communications technology will appear in April.

HP will put infrared technology in a new family of printers, the LaserJet 5P and 5MP. In conjunction with a number of PC hardware makers that are building infrared communications into notebooks and some desktop computers, HP's decision to use infrared in a printer may boost overall market interest in the technology.

Analysts have repeatedly said that HP's dominant market share in the printer arena means that its inclusion of infrared will drive significant vendor support. Companies such as IBM PC Co. and Texas Instruments, Inc. already have notebooks on the market that incorporate infrared data transfer. Analysts said more will follow suit this year.

Red hot market

Infrared "will be hot," predicted Randal Giusto, an analyst at BIS Strategic Decisions in Norwell, Mass. Giusto said the low cost — less than $5 per system — of infrared technology makes it an easy feature to attach. But he said users so far have been lukewarm about the technology.

> **Portable pressure**
>
> One factor in favor of putting infrared in printers is the way it works with the portable market. BIS Strategic Decisions estimates that seven of the Top 10 notebook vendors will offer infrared data transfer by this summer.

"The big challenge is to get end users to use it," he said.

HP officials said they expect to see a large number of computing devices containing infrared, although Lutz Marstellar, an HP product manager, said the company is not likely to build infrared into its network printers.

HP's initial target audience — the branch office or home office worker — for the 5P and 5MP makes sense, according to analysts.

"It reflects the transience of today's office worker," said Joel Wechsel, an analyst at Gartner Group, Inc. in Stamford, Conn. Wechsel also said HP was wise to build in the technology even if users need time to accept it. "I'm sure [infrared] isn't the most important thing to happen in printers this year, but it is important for HP to continue to innovate."

Besides serial infrared from the Infrared Data Association, HP built a variety of other features into these products, the first of the LaserJet 5 family. They print at 6 page/min., up from 4 page/min. for the prior generation. LaserJet 4Plus, which targets corporations, prints at a rate of 12 page/min. HP also added a second paper tray and replaced the serial port with an extra parallel port. The new parallel port increases the distance the printer will certifiably transfer data from 3 to 10 meters.

The new printers ship in April. The LaserJet 5P will cost $1,109, and the LaserJet 5MP, which adds PostScript support, will cost $1,299.

Orchid Technology has announced NuSound PnP, NuSound CD and NuSound Studio, audio adapters for PCs.

According to the Fremont, Calif., company, NuSound PnP provides 16-bit stereo sound, plug-and-play support, a CD-ROM interface, wave table synthesis and three-dimensional audio enhancement.

The NuSound CD adds a 16-bit SCSI-2 interface and a 1M-byte wave table synthesizer. The NuSound Studio adds digital audio effects, 4M bytes of RAM and downloadable RAM-based wave table synthesis.

Prices range from $139 to $259.

▶ *Orchid Technology*
(510) 683-0300

Zoom Telephonics, Inc. has announced Hotscan and distinctive ring features for its Zoom/Voice FaxModems VFP 14.4V.

According to the Boston firm, the Hotscan feature turns a fax machine into a scanner and lets users scan graphics or images to PCs. Modems with Hotscan are plugged into a phone jack then connected to the fax machine.

The distinctive ring feature distinguishes between fax calls and other incoming messages and can route these calls to different departments. The feature also identifies the speed at which an incoming data call is able to connect.

The Zoom/Voice FaxModems VFP 14.4V cost $120.

▶ *Zoom Telephonics*
(617) 423-1072

Symantec Corp. has introduced Mobile Link 2.0, an add-on for its Act 2.04 contact manager.

According to the Cupertino, Calif., company, Mobile Link 2.0 lets information systems managers track mobile users and provides synchronization and security features.

An on-line Electronic Literature Rack lets users selectively pull down longer documents.

Mobile Link 2.0 costs $100 per seat in units of three seats.

▶ *Symantec*
(408) 253-9600

Modatech Systems, Inc. has announced Maximizer for Windows 3.0, contact management software.

According to the Vancouver, British Columbia, firm, Maximizer for Windows 3.0 has added Microsoft Corp.'s Object Linking and Embedding support, a word processor, headers and footers, print previewing, graphics support and import/export capabilities.

The product prints in popular address and calendar book formats and includes a "find free time" feature when scheduling appointments. Standard features include customizable contact databases, an appointment hot list, calendars and an audit trail of contact activity.

Maximizer for Windows 3.0 costs $249.

▶ *Modatech Systems*
(604) 736-9666

Multi-Tech Systems, Inc. has announced MT2834PCS/C SVD, an internal Industry Standard Architecture bus simultaneous voice and data modem.

According to the Mounds View, Minn., company, MultiModemPCS provides 28.8K bit/sec. V.34 technology and was designed for the desktop videoconferencing market. An optional software package includes an answering machine, data and communications and document conferencing software.

The MT2834PCS/C SVD costs $499, and the optional software costs $199.

▶ *Multi-Tech Systems*
(612) 785-3500

Logicode Technology, Inc. has announced Quiktel 14V14PCM PC Card, a voice/fax modem for laptops.

According to the Tarzana, Calif., company, the product provides V.32 bit/sec. data transmission and V.42 bit/sec. data compression and can be used as a voice mailbox.

It features automatic tone or pulse dialing, call answering and answer tone detection. Voice capabilities include up to 999 individual voice mailboxes, password protection, an embedded voice-mode command set and automatic distinction between voice, fax or data transmissions.

The Quiktel 14V14PCM PC Card costs $249.

▶ *Logicode Technology*
(805) 388-9000

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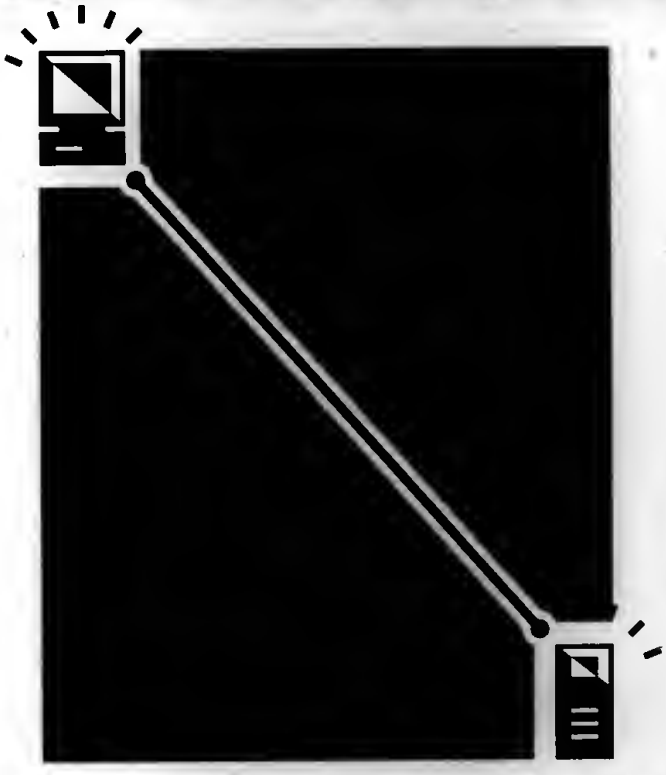

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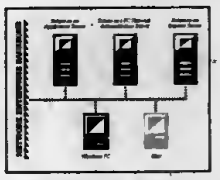

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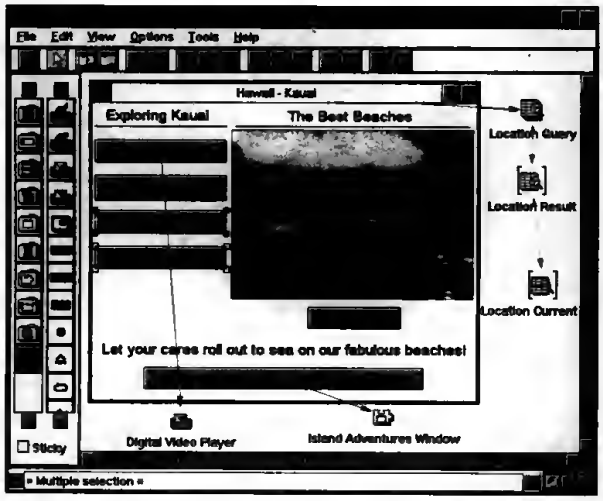

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IBM®

Digital aims Alpha servers at MicroVAX users

By Neal Weinberg

Digital Equipment Corp. filled the gap in the low end of its Alpha line last week with a new server to replace the popular MicroVAX and a workstation aimed at the Unix market.

By shaving some speed off the Alpha chip, Digital was able to come out with an AlphaStation 200 workstation that breaks the $5,000 price barrier and an AlphaServer 400 that starts at less than $10,000.

But reaction is mixed on whether the workstation is still too pricey.

Terry Shannon, an analyst at Illuminata in Hollis, N.H., said the workstations are too expensive. "They need something that sells below $3,995," Shannon said.

"They have not yet elected to get price-aggressive enough to go after the high-volume marketplace," Shannon added. And the company appears to have no plans to drop the price any lower, he said.

"Alpha remains upscale," Shannon said. "While everybody would like to drive a BMW, a hell of a lot of people can only afford Volkswagens."

But Robert Stephens, vice president of sales at Total Tec Systems, Inc., a distributor in Edison, N.J., said he does not see price as a problem.

He said the new Alpha workstation is winning business away from competitors, especially when it comes to technical applications.

"The key thing we're noticing is that in our [value-added reseller] portfolio, Digital is winning market share from competitors," he said. "This is really the first time they've had a high-performance product that was price-competitive in that end of the market."

Digital's new low-end Alphas

	AlphaStation 200 4/100	AlphaServer 400 4/166
Clock speed	100 MHz	166 MHz
Maximum memory	192M bytes	192M bytes
Maximum internal storage	3.15G bytes	8.4G bytes
Availability	Now	Now
Starting price for Windows NT version	$4,285	$9,315

Better, not cheaper

The AlphaStation does not beat Sun Microsystems, Inc. on price, said Dominic Ricchetti, an analyst at Dataquest, Inc. in San Jose, Calif. But Digital touts its price/performance.

Ricchetti said Digital is playing catch-up with Hewlett-Packard Co. and Sun, which have built strong momentum in the Unix marketplace.

Digital is pushing the new products through its channel partners in a bid to win high-volume sales.

The AlphaServer will be a big hit with existing MicroVAX customers, predicted Chris Christiansen, an analyst at International Data Corp. in Framingham, Mass.

"It should be a great volume box for all the small distributed sites they always sold the MicroVAX into," Christiansen said. The AlphaServer 400 is ideally suited to run Microsoft Corp.'s Windows NT with an Oracle Corp. database attached to a Novell, Inc. network, he added.

In fact, Matra Datavision, Inc. in Tewksbury, Mass., is marketing its computer-aided design (CAD) and manufacturing software on the AlphaStation 200 in combination with Windows NT. "The price/performance is super," said Bruce Boes, vice president of technical operations at the company.

Ronald D. Freed, MIS manager at Hatfield Quality Meats, Inc. in Hatfield, Pa., said he is an Alpha believer. He uses the 2100 server for accounting, inventory, order entry and administration at the full-line packing house.

"It has been a fabulous box for us," Freed said. So good that the company is considering purchasing additional Alphas to take on even more of the computing load.

> Digital needs "something that sells below $3,995. . . . They have not yet elected to get price-aggressive enough to go after the high-volume marketplace."
>
> *—Terry Shannon, analyst, Illuminata*

However, Mark B. Bierman, manager of the information systems department at the American Association of Orthodontists in St. Louis, is eyeing a Pentium-based solution. As his VAXcluster winds down, Bierman said he is looking for a replacement, probably in the next six to eight months.

Nick Ruse, marketing manager for Alpha workstations at Digital, said the systems are targeted for uses such as low-end mechanical CAD and financial applications.

The server is aimed at "mission-critical computing at the very low end," said Andrei Shishov, Digital's director of marketing for the Alpha server line. It can be used as a LAN server for file, print and electronic-mail applications or as a file backup system or application server.

Shannon said the new products extend Peripheral Component Interconnect bus support down to the low end of the Alpha line. And they are upgradable to speedier chips.

LAN standard held hostage by third-party indifference

By Steve Moore

Early users of the Desktop Management Interface (DMI) say they are excited about the new PC LAN management standard's potential but are frustrated by vendors' tardiness in delivering DMI-enabled hardware and software.

If DMI lives up to its advance billing, it will help users put an end to "Sneakernet" PC LAN management. Instead of dispatching a technician to each desktop every time a configuration change is needed, LAN administrators will use automated, DMI-compliant management tools to remotely monitor and configure desktop PCs.

Support essential

"The DMI is the best idea since sliced bread, but it's not going to mature without broad third-party support," said a senior integration engineer at a major U.S. armed services contractor, who requested anonymity. Unable to wait for more vendors to implement DMI, the contractor is "looking into other configuration management options. We'll put [Microsoft Corp.'s Systems Management Server] on NT and Frye Utilities on NetWare and run them against each other," the engineer said.

Birth of a standard

DMI provides a standard means by which desktop PC hardware and software components can communicate their system resource requirements to client/server management applications.
DMI was developed during the past three years by the Desktop Management Task Force, a consortium of more than 300 hardware and software vendors.

Because DMI holds the potential to ease users' LAN administration pains, "people are already figuring DMI fairly heavily into their future investment plans," said John McConnell, president of McConnell Consulting Co. in Boulder, Colo.

"Going forward, one of my requirements for anything new that we buy is DMI compatibility," said Samuel Bieber, a network administrator at Omron Health Care, Inc. in Vernon Hills, Ill. "If we can implement [DMI] and improve the reliability and efficiency of our LAN environment without sucking the blood out of users' workstations, I'm all for it."

Waiting for the other shoe

But other users have their doubts. "We won't commit ourselves to any desktop management standard at this point, and I don't see how we could with Windows 95 coming out with very strong support for Plug and Play," said Steven Shaffer, network manager at Management Consulting and Research, Inc. in Falls Church, Va., and a user of Intel Corp.'s DMI-enabled LANDesk Management Suite.

Even though Management Consulting has already committed substantial resources to training its LANDesk users, Shaffer explained, he intends to "let the heavies duke it out and see" whether DMI emerges as the primary desktop management standard.

"If this DMI thing is going to fly, let's get everybody on the bandwagon," said Glen Farrell, LAN systems coordinator at Firestone Textiles Co. in Woodstock, Ontario. If DMI had been implemented in the eight Pentium-based PCs his company recently bought, he noted, there would have been no need for him to visit each of those machines just to change a single omitted software setting.

While pioneering users clearly see its value, "I don't believe that the average LAN manager really understands the importance of DMI," said Cheryl Currid, president of Currid & Co., a Houston consultancy. "These guys are so busy putting out fires that they don't have time to think about fire prevention."

Notes gets Memo as partner

By Suruchi Mohan

As "collaborative computing" becomes the catchphrase in more organizations, vendor companies are tumbling into one another's arms in an effort to woo users with rich offerings.

A recent alliance of this nature was formed between Cambridge, Mass.-based Lotus Development Corp. and Denmark-based Verimation, Inc. Under the terms of the agreement, the companies will help users integrate their respective offerings — Notes and Memo.

Notes is Lotus' groupware and application development platform; Memo is Verimation's workgroup computing product that offers electronic mail, calendaring/scheduling, forms and bulletin board services.

Everyone wins

"This could be a win-win situation for both companies," said Karl Wong, principal analyst for PC and workgroup software at Dataquest, Inc. in San Jose, Calif. "The most impact will be on Memo customers who want or need to migrate. Lotus stands to gain from some minor migration, and Verimation can claim to support the current leader in groupware. Overall, this announcement will have little effect on either company in terms of actual dollars," he said.

Rob Leftwich, business account manager at Norfolk Southern Corp., a transportation company in Roanoke, Va., said his company is looking at Memo's integration with Notes as a way of providing users with another option for workgroup computing. Norfolk Southern has 27,000 Memo users. Novell, Inc.'s GroupWise and Microsoft Corp.'s Exchange are obviously strong contenders, but Verimation's alliance with Lotus helps Memo.

Leftwich said users at his company, which has only recently begun experimenting with Notes, are keen on application development. None is taking place right now.

To help users integrate the platforms, Lotus will provide technical support for developing interoperability between Memo and Notes, including the ability to use Memo as a front end to Notes. Interoperability will also entail exchanging and synchronizing messages, attachments, directories, calendars and forms.

Later this year, the companies expect to have three components that will ease integration: mail connectivity, directory coordination and synchronization and seamless access between Notes and Memo.

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E-mail put to work for software distribution

By Suruchi Mohan

For the harried network administrator, a product that saves time is a real boon, especially when new products and software upgrades result in a plethora of electronic files to be installed and managed every few months.

WinInstall 4.0, which On Demand Software & Services, Inc. in Naples, Fla., introduced last summer, does just that, according to users. It is priced at $495 per server.

"Time is a major benefit," said Mark Moore, principal systems support analyst at Samsonite Corp. in Denver.

Previously, when a new user was added to the network, administrators had to copy a template to the home directory and update 10 .INI and icon files. Now they copy a template, start Windows, run WinInstall and put in the group name and sign-up name. WinInstall updates the .INI files and customizes the icon files with the right properties. "What took an hour and 10 minutes now takes 25 minutes," he said.

Uninstall

Open Networks President Paul Oppenheim said WinInstall's ability to remove any application installation or upgrade it makes at the touch of a button is extremely important because Windows applications are sometimes incompatible with one another.

Hours to minutes

Time savings, though hard to quantify, seem to be what users find most beneficial. Paul Oppenheim, president of Open Networks, Inc., an integrator in Portland, Maine, estimated that administrators at a 500-user site would save about 41 hours using WinInstall if they normally spent five minutes — a conservative estimate — per workstation for an application setup routine. "If you can distribute Windows applications automatically using WinInstall, you've saved one week per [administrator]," he said.

WinInstall has the greatest benefit for users installing software that cannot be set up through the network, said Larry McHaney, technical coordinator at Tomball Independent School District in Tomball, Texas. For example, it would not save any time for an administrator installing a product such as Microsoft Corp.'s Office, which can be installed from the network, because administrators do not have to go to each individual workstation anyway.

WinInstall is also great for upgrading software to remote sites from the main office, said Michael Roy, a systems analyst/programmer at Advanced Systems Group, a consultancy in Denver. This feature saves money in travel expenses, he said.

WinInstall differs from other software distribution utilities such as Frye Computer Systems, Inc.'s Software Update and Distribution System (SUDS) in that it can be sent to users as an attachment to electronic mail.

"SUDS is a good package but does not have the ease-of-use features that WinInstall has," Oppenheim said. WinInstall does not require a terminate-and-stay resident (TSR) program, which is a big benefit because a TSR program takes up RAM, conflicts with other TSR programs and conflicts with applications, he said.

Europe prefers Unix over NT

By Cara A. Cunningham

PARIS

The threat posed to Unix by Microsoft Corp.'s Windows NT in Western Europe will be modest, according to the results of an end-user study by market researcher International Data Corp. (IDC) in Framingham, Mass.

"It is evident that Unix and NT will increasingly become competing operating systems," said Lone Poulsen, an analyst at IDC's European Unix Service in Copenhagen, who issued the report. "What seems most comforting to Unix vendors is the fact that users rarely plan to invest in NT at the expense of Unix. Often investments are made in both."

This year, the annual study sampled corporations of differing sizes and industries in France, Germany, the UK, Italy, the Netherlands, Denmark, Sweden and Norway.

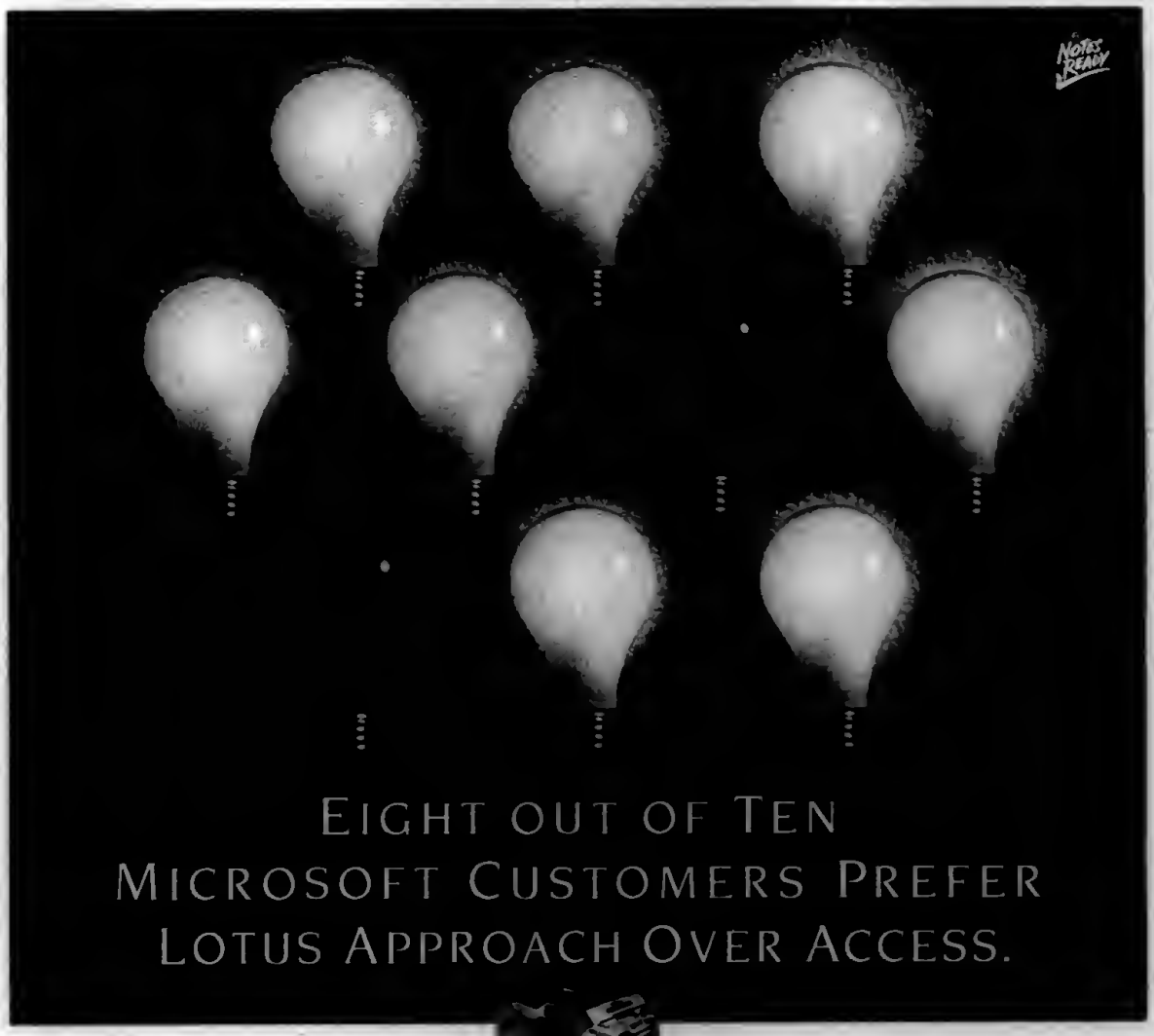
In most instances, users said their intention to buy either Unix or Windows NT did not exclude the other operating system from their plans. Even in the server arena, where Unix and Windows NT are most likely to bump heads, Unix is not "highly threatened" by Windows NT, Poulsen said.

In fact, in the server operating system market, Windows NT poses more of a threat to Novell, Inc.'s NetWare, he said.

Users should note, however, that Windows NT is making some ripples in the Unix world. Of the Western European users surveyed, 18% said the existence of Microsoft's operating system decreases their commitment to Unix, up from 7% last year. Conversely, 3% said the release of Windows NT has strengthened their commitment to Unix.

Survey participants had two pieces of advice for Unix vendors in the battle against Microsoft: Agree on a single, unified Unix, and make Unix easier to use.

Cunningham is Paris correspondent for the IDG News Service.



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Independent Research Findings

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- **30% More Complete than Access.**
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†Independent test conducted by User Interface Engineering, North Andover, MA, 12/94. *Comparative Database Query Performance Tests, National Software Testing Labs, December 1994.

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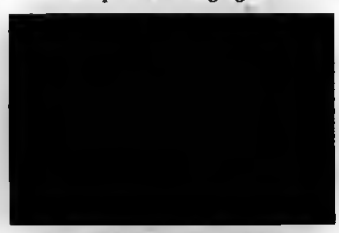

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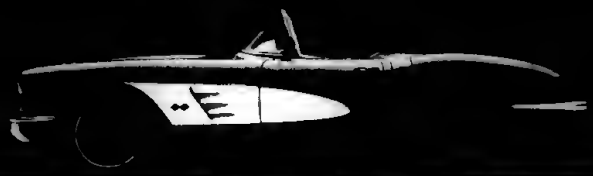

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Galacticomm, Inc. has announced Worldgroup, interactive on-line software.

According to the Fort Lauderdale, Fla., company, Worldgroup includes electronic mail, group message forums, file libraries, multiuser teleconferences, polls and questionnaires. The client can access the server through a modem or via the Internet.

The server software can handle more than 100 dial-up callers and up to 64 Internet connections. A multithreaded, error-correcting protocol gives users multitasking capabilities.

Prices range from $400 to $500.

▶ *Galacticomm*
(305) 583-5990

ImageFast Software Systems, Inc. has announced ImageFast 3.0, document and image management software.

According to the McLean, Va., company, ImageFast 3.0 works with any standard Open Database Connectivity (ODBC) SQL database running any back-end PC, midrange or mainframe server.

Features include improved indexing, enhanced scanner support and an integrated workflow component to route information to network users.

A stand-alone version of ImageFast 3.0 includes Watcom International's ODBC SQL database and costs $995. Prices for five concurrent users start at $4,995.

▶ *ImageFast Software Systems*
(703) 893-1934

Caere Corp. has announced PageKeeper 2.0, document management software.

According to the Los Gatos, Calif., company, PageKeeper 2.0 features automatic indexing and graphically displayed ad hoc queries ranked in order of importance.

A similar document search feature lets users employ one document to search for related documents, and a PK-Direct feature makes PageKeeper functionality available from other Windows applications. The product is integrated with Delrina Corp.'s WinFax Pro 4.0 to directly import faxes or receive logs.

PageKeeper 2.0 costs $195.

▶ *Caere*
(415) 395-7000

Computer Systems Advisors, Inc. has announced Silverrun-Enterprise, business modeling software that provides concurrent access for modeling teams.

According to the Woodcliff Lake, N.J., firm, Silverrun-Enterprise lets users build and manage a portfolio of models, including business process, conceptual, logical and physical data models as well as the model of a data warehouse.

Objects changed by one developer will be refreshed on the screens of others viewing the same objects.

Silverrun-Enterprise comes as part of Silverrun's Relational Data Module, which costs $4,000 per user.

▶ *Computer Systems Advisors*
(201) 391-6500

UES, Inc. has announced KI Shell 1.2, cross-platform workflow management software.

According to the Dublin, Ohio, firm, KI Shell 1.2 adds support for Windows and lets users participate with a consistent user interface in workflows that operate across PCs running Windows and OS/2 as well as workstations running IBM's AIX, Sun Microsystems, Inc.'s Solaris, Hewlett-Packard Co.'s HP/UX and Silicon Graphics, Inc.'s Irix.

KI Shell 1.2 costs $1,200 for a runtime license, depending on the number of concurrent users.

▶ *UES*
(513) 426-6900

Tenon Intersystems has announced Mach X 3.1, X Window System server software for Macintoshes.

According to the Santa Barbara, Calif., firm, Mach X 3.1 supports 8-bit pseudocolor and lets users hide the Macintosh top-level menu bar. The software comes with a TCP/IP protocol stack, Internet tools, serial communications support and Network File System file sharing.

It includes Xlib extensions for device-independent color, an X Display Manager, an executable font server, a set of X development libraries, a Motif tool kit and a suite of X clients.

Mach X 3.1 costs $350.

▶ *Tenon Intersystems*
(805) 963-6963

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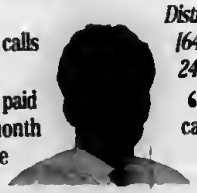

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NetWare Directory Services.
Access and view your entire network at a single glance.

The previous generation of networks only let you view the network one server at a time. They weren't exactly convenient. But with NetWare 4.1, it's different. You get a complete view of the network. It's the only network that allows users to login once and access any file, document or resource for which they're authorized. Even better, administrators can manage the network from a single-point-of-administration. That means you avoid the hassle of managing your network server by server, managing it instead as a single entity.

Conveniences like these can save you a whole lot of time and money.

NetWare Messaging Services.
The simplest way to manage your E:mail users.

In the past, messaging required a separate purchase, a separate installation, and a separate database. With NetWare 4.1, everything is a lot simpler. That's because integrated messaging built into NetWare 4.1 works with almost any E:mail front-end application. There's no additional mail software needed. And, it's integrated with NetWare Directory Services, so network and E:mail administration can be accomplished through a single-point-of-administration. It's a lot simpler, and a lot easier.

NetWare Multiprotocol Routing.
Get your data from point A to point B.

Getting connected to other networks usually means buying separate hardware. But with NetWare 4.1, multiprotocol routing comes built-in. And because NetWare's Multiprotocol Routing supports IPX, TCP/IP, Appletalk and others, it connects networks without the need for additional hardware. And not buying all that extra hardware can add up to big savings. Who could possibly be against big savings?

NetWare Network Management.
Easily the most manageable network.

NetWare 4.1 offers unmatched management and administration capabilities. For example, it allows you to take full control of any server from anywhere on the network. It also has a new graphical user interface that lets you manage the

network as a single entity, instead of a collection of separate servers. So jobs that used to take hours can be accomplished in minutes. Plus, tasks like setting up users, granting security privileges and access to resources—tasks that were very time consuming with NetWare 3— aren't with NetWare 4.1. Click a few icons, then type information in a dialog box. You've just added another user to the entire network. It's quick and easy. Again—saving you time and money.

NetWare 4.1 Security Services. Simply the industry's most secure NOS.

One of the greatest concerns about any network operating system is how secure it is. NetWare 4.1 includes RSA security, the industry's most secure password encryption and digital packet signature technology. In fact, it was designed to meet the National Computer Security Center's Class C2 Network Security criteria. Look. If you can't afford to have confidential data in the wrong hands, that's reason enough to upgrade your network to NetWare 4.1 today.

NetWare 4.1 File Services. We just improved on perfection.

NetWare 4.1 shares the same industry leading file system as NetWare 3, except it also comes with terrific, industry leading enhancements. There's a server-based file compression feature that can double the size of the hard drive, leaving more room for data. And sub-allocation provides more efficient storage. It also provides optional large block sizes which speeds data transfer performance from hard drive to memory. And data migration reduces storage media costs by transparently migrating data to near-line or off-line storage. You know, this is a great way to avoid having to shell out the big bucks for more space later.

NetWare 4.1 Print Services just got smarter.

With NetWare 4.1, you can say goodbye to printing nightmares for good. NetWare 4.1 provides the most robust set of print services in the industry. It's terrific. For example, you don't need to know anything about the print server.

7 Key Services	NetWare 4.1	NetWare 3
1 DIRECTORY Global directory service	YES	NO
2 INTEGRATED MESSAGING	YES	NO
3 MULTIPROTOCOL ROUTING	YES	Add-on product
4 NETWORK MANAGEMENT Graphical user tools provide view of entire network	YES	NO
5 NETWORK SECURITY		
RSA public/private key	YES	NO
Restrict login to specific Mac address	YES	NO
Security auditing	YES	NO
6 FILE SYSTEM AND STORAGE Support for data-migration hardware, data compression and disk block suballocation	YES	NO
7 NETWORK PRINTING	256 per print server	16 per print server
Additional Services		
• INTEGRATED SYSTEM FAULT TOLERANCE LEVEL III	YES*	Add-on product
• CLIENT SUPPORT AND INTEROPERABILITY		
NetWare for Macintosh, Number of user licenses included	Included in Netware user licenses	5
Graphical user tools	YES	NO
• WAN SUPPORT Network link Service Protocol™ (NLSP)™	YES	Add-on product
• ARCHITECTURE		
Maximum number of user connections per server	1,000	250
Nondedicated server	YES**	NO
Single login to network	YES	NO
Additive licensing	YES	NO

All you need to know is the name of the printer and you're set. That's it. Plus, NetWare 4.1 Print Services maximizes your hardware investment because it allows up to 256 printers to run off one server (as opposed to NetWare 3, which limits you to 16 printers). Just think how much time, money, and hours of frustration this could save you.

NetWare Return on Investment. It makes sense on your bottom line.

NetWare 4.1 has the lowest cost of ownership in the industry. In fact, the META Group reports NetWare 4.1 can cut 25%† from the cost of managing a network. Think of it. That means your NetWare 4.1 upgrade or new purchase will virtually pay for itself in no time. Here's a chance to make the accountants smile for once.

NetWare 4.1. All this and much, much more.

NetWare 4.1 also comes with everything you need to run your network on TCP/IP, so you can run IPX or TCP/IP throughout your network. It also has built-in support for your Macintosh users. And built-in System Fault Tolerance level III capabilities. (To activate this service, all you have to do is simply purchase a license disk and you can reduce the chances of network failure to almost zero. And because it's built-in, there's no need to reload your system).

Still, we know all these features wouldn't mean diddly if they didn't work right out of the box. So we submitted NetWare 4.1 to rigorous testing—first we tested it at Novell labs, then the press took a crack at it, and finally, our toughest customers got their chance. It passed with flying colors. Without a doubt, NetWare 4.1 is set to take center stage in the industry.

We hope we've told you enough to get things underway. But in case you need more information about NetWare 4.1, just call Novell at 1-800-844-6661 or dial us in at http//www.netware.com. We'll do everything we can to help.

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NetWare 4.1

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Verdict not in on Time Warner's trial interactive cable system

By Ellis Booker and Kim S. Nash

Time Warner Cable's Full Service Network (FSN) trial — one of the first attempts at interactivity over a cable system — has received equal amounts of praise and derision.

Officially launched on Dec. 14, 1994, the network will connect 4,000 customers in Orlando, Fla., by year's end.

The pilot system, which will run for about one year, has won kudos for its use of the latest digital switching, digital compression and digital transmission technologies.

AT&T Network Systems is supplying the Asynchronous Transfer Mode switching gear; Silicon Graphics, Inc. is providing the media server platform and operating system; and Scientific-Atlanta, Inc. is supplying the set-top box, which connects a subscriber's television to the network, as well as the network electronics and fiber-optic cable.

Fully configured, FSN will offer 1 GHz of bandwidth before compression. Fiber-optic lines from the head end will connect to neighborhood nodes; about 500 homes will be connected to each node over coaxial cable.

Size an issue

Some observers have lambasted the small size of the FSN test, which was inaugurated with just a handful of residences and still only involves about 20 homes and another 30 sites at FSN offices or at the homes of FSN employees.

"All these [interactive TV] trials end up proving if you create a scenario that's commercially impossible but give it away, people will take it," said Tom L. Nolle, president of CIMI Corp., a market research firm in Voorhees, N.J.

None of the video-on-demand trials have been able to cost-justify their expected infrastructure investments, he said. "People would have to spend $5 per movie, five days a week," Nolle said.

Other critics point to the eight-month delay in the FSN's start date, which was supposed to have been April 1994.

"We'll have 4,000 homes by the end of the year," said Mike Luftman, vice president of corporate communications at Time Warner Cable in Stamford, Conn. Luftman said a delay of a few months is not unusual for high-technology companies, and Time Warner was surprised by the "almost hostile" criticism it received when it missed its April start date.

Two possibilities

According to Luftman, some of the ire reflects the ongoing debate over whether the information superhighway will be accessed by televisions or PCs. "Some services make more sense [to deliver] over a TV, some over a PC," he said. "To us, it is blatantly clear it is both."

In fact, Time Warner is covering its bets: Later this year it will announce a trial for PC-based on-line services across one of its cable networks, and earlier this year, it announced an Internet-based version of its anemic Catalog 1 cable shopping channel joint venture with Spiegel, Inc. A month ago, Time Warner scaled the cable version of Catalog 1 back from round-the-clock operation to running just on Saturday mornings.

Those involved in the FSN test say Time Warner will derive important metrics about what consumers want from interactive TV.

"They're looking at what people want to do, how much people are willing to pay, and what the killer application[s] will be," said Qung Go, the Andersen Consulting technology integration services partner who oversaw the project. Chicago-based Andersen assisted Time Warner with program management, network engineering, integration testing and deployment of the network.

However, Nolle disagreed. "Exploratory" interactive cable trials such as FSN are valuable from a technical standpoint, he said, but "you can't use them to test what can be expected in the broad market."

But Go, noting that every major phone company and cable company is performing some kind of interactive cable experiment at the moment, said user companies should prepare for how these future systems will impact the way they communicate with customers and provide services.

Deere conquers bandwidth crunch demon

By Laura DiDio

Bandwidth, or the lack of it, is a problem that is becoming commonplace as businesses strain the limits of their networks to maximum capacity and beyond.

In the case of John Deere & Co.'s Waterloo Works manufacturing plants in Waterloo, Iowa, running out of bandwidth was not just a one-shot deal. It was a recurring situation that cropped up every two years, according to Ron Stahlhut, a senior engineer at John Deere.

ON SITE

John Deere & Co.'s Waterloo Works
Waterloo, Iowa

Problem: Plants were running out of network capacity every two years.

Technology: Three Digital 14-slot GIGAswitch/FDDI devices.

Benefits: Plenty of extra capacity, including the ability to take down one of the data links for maintenance and still have leftover bandwidth.

The company finally conquered the bandwidth demon by swapping out its point-to-point Ethernet wide-area network bridges and installing three Digital Equipment Corp. 14-slot GIGAswitch/FDDI devices. These, Stahlhut said, will provide John Deere with enough capacity to meet its bandwidth needs "beyond the year 2000."

Upgrading regularly

"We were a textbook example of a shop that was maxing out its bandwidth on a regular basis as we installed more and more demand-intensive engineering applications on our networks," Stahlhut said. "Every two years like clockwork, we'd spend at least $60,000 to upgrade our WAN links."

The company has a diverse network setup that includes Unix, Macintosh and DOS machines running a combination of Novell, Inc.'s NetWare 3.11, Microsoft Corp.'s Windows NT Server 3.5 networks as well

Waterloo Works, *page 58*

This free booklet helps you make the right connections.

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- Do you access 3270/5250 applications interactively, use batch (RJE), or do both?
- Do you need programming interfaces such as HLLAPI, APPC/CPI-C/LU6.2, and LU/A/LU0?
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The Magazine

Client/Server. Where's it at in the real world? You'll find out in a special June 15 edition of Computerworld Client/Server Journal. With the expertise of Cambridge Technology Partners, a world renowned client/server consultancy, we surveyed more than 250 North American organizations to gauge their client/server prowess. Our special issue will list the 25 top most effective users of client/server technology by measuring their:

- *Investment in infrastructure.*
- *Application architecture and deployment.*
- *Applications' hard and soft benefits.*
- *Technology/business strategy alignment.*
- *IT management philosophy and culture.*

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For more information on this panel, call (508) 470-3880.

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51 Sales & Mktg. Management
70 Medical, Legal, Accounting Management
OTHER PROFESSIONAL MANAGEMENT
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90. Other Titled Personnel

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(b) Netware (f) Windows NT
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HP, Legent broaden management platforms

By Steve Moore

In separate but related moves, Hewlett-Packard Co. and Legent Corp. recently sought to expand the scope of their network and systems management products by broadening their relationships with other players.

Both vendors are leveraging their industry ties to redefine themselves as purveyors of enterprisewide management suites. Under its OpenView Solution Framework, HP will make its application programming interfaces (API) available to developers who want to integrate their applications with key OpenView components, beginning now with the OperationsCenter problem management software.

For its part, Legent will integrate Simware, Inc.'s RexxWare LAN administration tool and IX Corp.'s Open Rexx scripting language into its Prevail/XP products to support automated management of Novell, Inc.'s NetWare servers. In March, Legent will also ship Prevail/XP Automation Point for HP/UX, which will incorporate HP's OperationsCenter.

Given the announcements, HP claims it will deliver comprehensive network, systems, application and database management via its Common OpenView Solution Framework. Legent promises to automate the management of all devices, networks and servers in mainframe, Unix and NetWare shops.

But users doubt whether any single vendor can orchestrate a total information technology solution. There is nothing on the market "that can be truly considered an enterprise management server," said Frank Belland, a senior communications consultant at Martin Marietta Corp. in Orlando, Fla.

"If you have four operators going into a server for router and hub management, systems management, E-mail management and database management, putting all that in one box buries the box" by overwhelming the server's ability to handle the workload, he said.

Integration benefit

The main advantage of integration is not necessarily having one box that handles every management function. Instead, the major benefit is in "leveraging your staff by receiving alerts for problems that exist in systems, networks or applications and passing them on to the appropriate level of support for resolution," said Paul Edmunds, a senior information systems analyst at Duke Power Co. in Charlotte, N.C.

In other words, automated alerts can get to a single console operator who will forward them to the appropriate person. This replaces a system where staffers are constantly running around checking on things and trying to decide whom to notify.

Users also questioned the wisdom of funneling too many management functions to a single administrator. If called upon "to manage a total enterprise from one high-end workstation, one human would go into sensory overload," Belland said. Rules-based artificial intelligence technology may ease the man/machine interface bottleneck in the future, he added.

Network management news

Hewlett-Packard

OpenView OperationsCenter services and APIs available to developers now; OpenView AdvisorCenter services and APIs to be available to developers in early April.

Legent

Will ship Prevail/XP Automation Point for HP/UX in March and support Novell NetWare LAN management by integrating technologies from Simware and IX Corp. into the Prevail/XP product suite.

Increasing cooperation among platform vendors and independent software vendors will simplify procurement by enabling users to buy integrated application suites. Traditionally, users have had to buy "20 different products from 20 different vendors — ending up with an unthinkable systems integration challenge," said Barbara Sannerud, systems software technology research director at Gartner Group, Inc. in Stamford, Conn.

However, she added, because every platform vendor wants relationships with the top software vendors, the key differentiator for the platform suppliers is the "infrastructure to leverage the applications." By that she meant all the things it takes to make applications "snap in" to a platform, including APIs, a common data repository and common user interface.

NetWare issues

Once vendors give customers the means to integrate information technology management, users then must deal with real-world organizational issues.

"It remains to be seen whether organizations really want to manage NetWare servers from the same point as Unix servers," said Paul Mason, research manager for enterprise systems management at International Data Corp. in Framingham, Mass. But, he added, referring to Legent's effort to integrate Unix and NetWare automation capabilities, "people who installed NetWare servers did it for a reason — to get away from central IS."

Wildfire sparks interest in phone software

By Michael Fitzgerald

Wildfire Assistant, a product designed to help heavy-duty travelers keep their work lives from flaring out of control, recently began shipping.

Wildfire Assistant, from Lexington, Mass., start-up Wildfire Communications, Inc., combines hardware and software to help track and sort calls for users. For example, the product lets a person at a pay phone take incoming calls.

The market may have given Wildfire Assistant a spark because three companies have purchased units. In addition, eight companies bought pilot capabilities.

Companies that purchased the first Wildfire units include McCaw Cellular Communications, Inc., which bought a 72-user system; Natural Microsystems, Inc., which bought a 24-user system; and Swiss Bank Corp., which bought a 48-user system.

Wild talk

Wildfire components include:

Operating system

Sits on top of the server operating system and serves as communications hub and platform manager.

Object database

Is integrated with the operating system, interface and assistants. It accepts verbal or data input and creates a contact database. With agents, it can automatically dial numbers when a name is spoken.

Multimedia user interface

Sits between the operating system and the assistants and agents. With it, Wildfire can answer a user's phone with a personalized message.

Assistants and agents

Handles message delivery and other tasks. They are user-defined.

Cellular opportunities

McCaw also invested $5 million in Wildfire and is considering using the company's technology to enhance its cellular service. The investment is not exclusive, and Wildfire is talking to other phone companies about ways to build its services into their systems.

Nicholas D'Arbeloff, Wildfire co-founder and vice president of marketing, said the McCaw investment "is a huge step" for Wildfire because it may open up new markets for the Wildfire Assistant. For instance, small companies typically cannot afford to purchase Wildfire Assistant. However, giving them the option to buy Wildfire Assistant's capabilities from a phone carrier could tap a significant market for the company.

D'Arbeloff also said none of Wildfire Assistant's beta sites have dropped the product, and the company is "very close" to selling systems to several of those companies.

One beta tester that purchased the pilot software is Temps & Co. in Washington, a temporary personnel agency.

Jason Feldman, a subcontractor at Temps & Co. who runs its Wildfire project, said the company is seriously considering applying the product to several aspects of the business. He said Temps & Co. is examining Wildfire Assistant's voice recognition.

Feldman said the company believes it can use voice recognition as a competitive advantage over other temporary agencies, particularly in conjunction with internal databases. He declined to specify in what ways.

Wildfire is now focusing on building relationships with other carriers and developing a sales channel, D'Arbeloff said. The company is also plunging ahead to develop a version of its software that will run over networks.

Previously, Wildfire officials had said the company was focusing on revising the current software to include specific modules, such as a time-tracking feature for client-intensive companies that want to track time spent on the phone with clients for billing purposes.

D'Arbeloff said the time-tracking feature was still in progress but was not as high a priority as developing a networked version of the product.

Briefs

FCC moves ahead with PCS

The Federal Communications Commission has moved to Stage III of its auctions for personal communications services. Stage III accelerates the auctions by requiring bidders to place bids based on their total eligibility for licenses. Total bids on the 90 licenses exceeded $6 billion for the first time last month.

VTAM for VM, VSE nearly ready

IBM has announced that VTAM 4.2 will be available for VM/ESA and VSE/ESA by mid-March. VTAM 4.2 will offer Advanced Peer-to-Peer Networking capabilities for the VM and VSE environments. These include the ability for VM and VSE SNA hosts to participate as peers and servers in an SNA network.

MCI signs $375M pact

MCI Communications Corp. has signed a $375 million agreement with Retex, a national consortium of retail stores. MCI is also developing electronic data interchange and videoconferencing applications for the virtual private network.

Routing

Cisco, 3Com aim to ease internetwork routing

By Stephen P. Klett Jr.

Cisco Systems, Inc. and 3Com Corp. recently announced additions to their respective software platforms that are aimed at simplifying routing in large internetworks.

3Com in Santa Clara, Calif., has introduced the following four capabilities designed to make it easier for users to deploy large IBM-based internetworks:

- **Smart filters:** Minimize unnecessary wide-area network traffic by reducing the heavy broadcast traffic and session polling associated with SNA and NetBIOS data transmission.
- **Payload compression:** Maximizes bandwidth for SNA applications by compressing packet header size for transmission across wide-area links. For example, a 200-packet frame can be reduced to a 50-byte frame, 3Com said.
- **Automatic prioritization:** Allows SNA traffic to travel across wide-area links before other protocols, such as IP and IPX, without any handling by network administrators.
- **Local termination:** Terminates local SNA and NetBIOS traffic to reduce session disruptions in remote office environments.

"These additions give users the ability to tune their SNA handling capabilities to match the parameters of their applications more exactly, which will result in savings," said Tom Nolle, president of CIMI Corp. in Voorhees, N.J.

The additions are an extension to 3Com's Boundary Routing Architecture and will ship with the NetBuilder Remote Office product line.

Meanwhile, Cisco in San Jose, Calif., last week announced support for Novell, Inc. NetWare environments in its Internetwork Operating System software. Cisco routers will now support the following features:

- **Novell's NetWare Link Services Protocol (NLSP),** which was designed to improve scalability in WANs.
- **Novell's IPXWAN 2.0 protocol,** which was designed to improve the efficiency of NetWare servers working with Cisco routers.
- **IPX Floating Static Routes,** which were developed by Cisco to boost network fault tolerance.

Observers lauded the NLSP support for easing scalability problems associated with running the Routing Information Protocol (RIP) in Novell environments.

In a typical environment, RIP updates are broadcast every minute, which can place a serious bandwidth burden on growing networks. NLSP combines service and router information in the router's link-state database, and updates are broadcast every two hours instead.

"This gives Novell router-protocol credibility without having to dedicate a great deal of [research and development] to get it," Nolle said. He added that the improved routing capabilities were vital for Novell to sustain user support for its IPX protocol.

Robert Tharp, network architect at Stanford Health Services in Stanford, Calif., agreed.

"We'd rather see Novell go off IPX completely and support either [Open Shortest Path First or Interior Gateway Routing Protocol], which are both more mature from a routing perspective. But if our second choice is Novell coming up with a new routing methodology and Cisco supporting it — I'll certainly take that," Tharp said. "Anything that replaces RIP has to be good."

[redacted]

Enterprise Systems Management Corp. has announced UName-It, a client/server Unix application that allows multiple systems administrators to cooperatively manage an enterprise's shared name space.

According to the Tustin, Calif., firm, UName-It simplifies support of multiple name services such as the Internet's Domain Name System and Sun Microsystems, Inc.'s ONC+NIS by providing a consistent way to store user names and addresses in a shared central database.

UName-It costs $24,000 for a basic license of about 400 network nodes and users. Pricing is based on the size of the name space managed and includes licenses for the database engine, the graphical and programmatic clients, the server and some additional scripts.

▶ *Enterprise Systems Management*
(714) 573-4075

Interphase Corp. has announced the 5515 PCI ATM adapter card, a 155M bit/sec. card.

According to the Dallas firm, the 5515 PCI ATM adapter card is optimized for Peripheral Component Interconnect (PCI)-based servers and high-end desktops.

The product comes with drivers for Microsoft Corp.'s Windows NT and Novell, Inc.'s NetWare.

The 5515 PCI ATM adapter card costs $650.

▶ *Interphase*
(214) 919-9000

NetPro Computing, Inc. has announced DS Expert for NetWare 4.1, network utility software.

According to the Scottsdale, Ariz., firm, DS Expert for NetWare 4.1 monitors, troubleshoots and optimizes Novell, Inc.'s NetWare Directory Services.

Features include partition views, partition alerts, multiserver traces, replication error warnings, server time synchronization alerts and low disk space alerts.

DS Expert for NetWare 4.1 costs $1,299 for two agents. Each additional agent costs $499.

▶ *NetPro Computing*
(602) 998-5008

Waterloo Works

CONTINUED FROM PAGE 53

as TCP/IP, Apple Computer, Inc.'s AppleTalk and Digital's DECnet protocols.

The networks run a wide range of computer-aided design/manufacturing and geometric multimedia applications along with word processing, spreadsheet and electronic-mail applications.

The number of users at Waterloo Works plants has remained fairly constant in recent years. But network usage has grown dramatically for mundane file and print services as well as more and different kinds of data stored on the file servers. For example, Stahlhut said users have been clamoring for the geometric multimedia documents used in service manuals.

Bandwidth shortage

The increasing demands of the Unix engineering applications and desktops constantly put them in a bandwidth crunch situation.

Waterloo Works inexorably outgrew its complement of 3Com Corp. and Fibermux Corp. WAN bridges as the size of their links increased from T1 to traditional Ethernet to the current DS/3 leased-line 45M bit/sec. connections.

"When bandwidth got tight and response time on applications slowed, we experienced slow screen updates, and we'd occasionally lose connections," Stahlhut said. "We went looking for the three E's: easy expandability, cost-effectiveness and ease of use."

At the same time, Waterloo Works wanted to maintain a flat network structure, which meant minimizing the number of routers and implementing Ethernet switches wherever possible, Stahlhut said.

At a cost of $35,000 each, the three Digital GIGAswitch/FDDI devices fit the bill. They provide Waterloo Works with ample bandwidth and are more cost-effective than installing high-speed routers at each location, Stahlhut said.

Each of the GIGAswitch/FDDI devices are equipped with 14 slots, 11 of which can be used for 100M bit/sec. Fiber Distributed Data Interface (FDDI) connections for an aggregate bandwidth of 1,100M bit/sec. They also deploy Asynchronous Transfer Mode cells over the 45M bit/sec. line connections using Digital's encapsulation method.

A direct link

Such high performance has enabled John Deere to effectively maintain its flat network structure and simplify router configurations.

The Cisco Systems, Inc. 7000 series routers, 3Com 3GH hubs and all file network servers link directly to the GIGAswitch/FDDI devices.

The server links, for example, give the John Deere manufacturing facilities high-performance access to engineering and obviate the need to buy a separate server for each site, Stahlhut said.

"The performance [of the GIGAswitch/FDDI devices] has been excellent. We've been able to do network switches on the fly; we can take down one of the DS/3 data links and not even notice a traffic rerouting on the GIGAswitches. They've been running like clockwork," Stahlhut said.

Best of all, the GIGAswitch/FDDI devices offer easy scalability to full 155M bit/sec., OC/3 ATM and Synchronous Optical Network capabilities for a relatively low investment of about $3,000 by simply changing a daughter card, Stahlhut said. The company plans to upgrade to ATM once the standard is set, he added.

"Overall, we're extremely pleased with the DEC GIGAswitch/FDDI, they do the job at a price we can live with. In less than a year, they've become such a key network component we couldn't operate today without them," Stahlhut said.

Agricultural equipment

As the world's leading producer of agricultural equipment, with sales of more than $8 billion in 1994, John Deere and its subsidiaries manufacture and distribute a full range of goods in more than 160 countries worldwide. The company's Waterloo Works manufacturing facilities consist of three plants spanning 11 miles, encompassing more than 7 million sq. ft. of manufacturing space and housing 2,500 end users.

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PC MAGAZINE NETWORK EDITION, EDITOR'S CHOICE AWARD "[Windows] NT Server simply provided the best combination of features, usability, a set of full but easy to use management tools, and the simplest and most impressive installation routine of any NOS we've seen." —*PC Magazine, December 20, 1994*

1994 BYTE AWARD OF EXCELLENCE "The new version is slimmer than 3.1. It carries big loads for servers and serious business, scientific and engineering users. Its performance-monitoring and event-logging services are sophisticated." —*BYTE Magazine, January 1995*

NSTL RECOMMENDED PRODUCT "Windows NT Server 3.5 has attained top rankings in all categories of NSTL's NOS evaluation. Windows NT Server's excellent performance, ease of use, and ease of learning features combined with its excellent networking make it a strong candidate for many network environments." —*Software Digest Ratings Report, November 1994*

ANALYST'S CHOICE AWARD "Windows NT [Server], in particular went the additional mile to fit into as many environments as possible. This makes Version 3.5 an excellent choice for an applications server, integrating smoothly into NetWare and LAN Server networks." —*PC Week, November 14, 1994*

EDITOR'S CHOICE AWARD "As for the competition, NT 3.5 is certainly a worthy rival to NetWare and Vines as a network operating system platform and with Unix as a premier application server platform." —*Network Computing, December 1, 1994*

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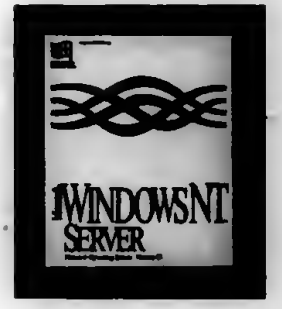

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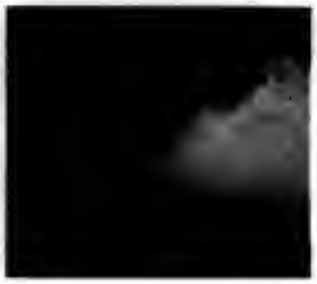

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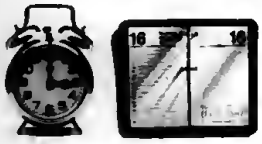

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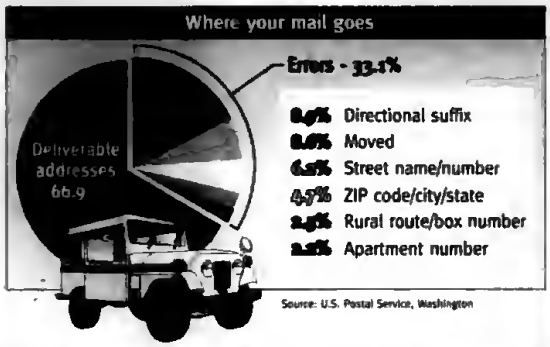

Postal software helps firms beat high rates

By Mitch Betts

While consumers faced a new 32-cent postage stamp at the start of the year, the U.S. Postal Service rate hikes hit businesses even harder. Third-class postage jumped 14% and second-class postage jumped more than 19%.

But large corporate mailers are fighting postage increases with software that cleans up addresses, adds bar codes and presorts mail to get postal discounts.

"Of course, we can't undo the rate hikes, but we can offset some of the increases," said Linda Beher, director of advertising mailings at ITT Hartford Life & Annuity Insurance Co. in Hartford, Conn.

By striving to get the maximum discount on its bulk mailings, ITT Hartford is able to save $135,000 a year on its 23 million mailings, Beher said. The company uses mainframe software packages from Group 1 Software, Inc. in Lanham, Md., to presort its bulk mail, which is then sent to the proper regional processing center of the Postal Service.

Reducing steps

In essence, preprocessing eliminates the step of taking the mail to a local post office. "We're doing more of the processing — what the receiving post office used to do," Beher said. The Group 1 software runs on an Amdahl Corp. 5990 mainframe.

Similarly, Chase Manhattan Bank NA in New York uses mainframe software from Group 1 and La Crosse, Wis.-based Postalsoft, Inc. to presort bulk mailings, verify nine-digit ZIP codes and add postal bar codes, said Ronald Dhanram, second vice president of mail processing. Switching from impact printers to laser printers has improved the legibility of the bar codes, which reduced the cases of returned mail, he said.

Accuracy = speed

By April 1, Chase plans to upgrade to Group 1's Code-1 Plus software to allow on-line verification of ZIP codes. Dhanram said he expects to save $500,000 on the 110 million statements Chase will mail this year.

Verification of correct ZIP codes and bar codes is vital to speedy and accurate mail delivery, said Marcus Smith, editor and publisher of "Postal World," a newsletter in Rockville, Md. He said the codes should be verified using Postal Service-certified software; "otherwise, you'll send the mail really fast to the wrong place."

The postal codes provided by some popular PC word processing packages are not certified, so users risk misdelivery, Smith cautioned. "Computer users are used to the notion that one digit wrong in a telephone number or one letter wrong in an electronic-mail address will not work, but they are careless with mail addresses.

"The bar codes, when properly generated, really speed up delivery. In a test, we sent 250 bar-coded pieces of third-class mail from Gaithersburg, Md., on a Friday evening, and they were delivered in Alaska by the following Monday," Smith said.

He said the next step in improving mail delivery is for employees to enter Postal Service-certified ZIP codes and properly formatted addresses into corporate databases for regular correspondence. "The quality of the address is directly related to how quickly the mail will be delivered," Smith said.

Cray fights for new users

High-end T90, low-end J90 targeted for industrial sites

By Craig Stedman

Cray Research, Inc. recently introduced the next generation of its flagship high-end supercomputers, starting a one-two punch aimed at making the company's products more appealing to industrial users.

The second punch will come next week when Cray doubles the size of its low-end J90 line to 32 processors, industry sources said. The J90 was unveiled last fall as the initial step in the company's effort to woo more industry business and reduce its reliance on the flattening government market.

Last year, Cray still got two-thirds of its revenue from government customers, and industry watchers said it needs to do better in the commercial sector to grow. "They've had far too large a dependence on government contracts," said Howard Richmond, an analyst at Gartner Group, Inc. in Stamford, Conn.

One of the family

In a key change designed to encourage industrial sales, Cray is releasing the new high-end T90 as a full family of systems with one to 32 processors. Traditionally, the Eagan, Minn., company shipped only the largest configurations of its high-end machines and then waited a year or more for smaller versions.

Cray was afraid of drawing sales from its biggest systems, but that strategy became self-defeating, said Debra Goldfarb, an analyst at International Data Corp. in Framingham, Mass. "The market for $35 million machines is very limited," she said. "Cray needed to be more in line with the way people buy products."

The North Carolina Supercomputing Center, which is scheduled to be one of the first T90 customers, would not have been in a position to buy the system so quickly if it was only offered in the full 32-processor size, said Jeffrey Hussekamp, director of the center in Research Triangle Park.

The center expects to get a four-processor T90 system in late summer as a replacement for its Cray Y-MP machine, he said.

"From a competitive point of view, I think Cray was very smart to do it this way," said Dick Sherman, president of RCI Ltd., a multivendor supercomputer user group in Minneapolis. The company "has acknowledged that it's a buyer's market now, not a seller's market," he said.

Whereas Cray in the past often displayed "arrogance," management changes late last year have led to "dramatic improvements in its marketing orientation," he added. Robert Ewald, Cray's new president and chief operating officer, is a former supercomputer user and "understands the user point of view," Sherman said.

In fact, the first T90 systems to ship around midyear will be the smaller versions, Cray said. Full configurations are due to follow by year's end. In another first, models with up to four processors will not require external liquid cooling, although they cannot be upgraded without the plumbing.

A total of eight T90 systems are on order so far, and one was installed for testing purposes at an undisclosed customer site in December, Cray said. The system, which starts at $2.5 million, can do up to 60 billion calculations per second, compared with a peak of 16 billion on the predecessor C90, it added.

Downward trend

Meanwhile, the expansion of the low-end J90 will give Cray a longer upgrade path that may help differentiate those systems from competing machines and workstation clusters sold by Silicon Graphics, Inc. and IBM, said Rich Partridge, an analyst at D. H. Brown Associates, Inc. in Port Chester, N.Y. The J90 is a critical product because high-end supercomputer demand is flat, but Cray is playing catch-up in the low end of the market, he said.

Cray had a less than rousing 1994 marked by modest revenue growth and a decline in profits, which went from $60.9 million in 1993 to $55.7 million last year.

This year is expected to be even worse, with the company predicting a revenue drop and break-even results at best. Some of that is the result of the high-end product transition, but Cray also faces lower selling prices, increased marketing expenses and a sharply reduced order backlog.

According to Goldfarb, the T90 and J90, plus the recent management changes, put Cray in position to rebound. "From a product standpoint, the company has never been stronger," she said.

Less is better

The design of the T90 eliminates more than 36 miles of internal wiring that is part of the current generation of C90 supercomputers, Cray said. The company developed connectors that directly link the T90 processor modules to memory, eliminating the need for interconnect wires. Modules can be installed or removed by applying low voltage to disengage the connectors.

1 party

Cray's new T90 family of high-end supercomputers includes the following features:

- [illegible]
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OBJECT WORLD UPDATE №5

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• ***Business Engineering with Object Technology.***
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32. Development Manager
33. Researcher
34. Programmer
35. Other

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36. Under 100
37. 100-499
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39. 1000-4999
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45. Develop/Use
46. Install
47. Other

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Europcar drives rocky road to Unix

By Pierre Berger and Cara A. Cunningham
PARIS

After serious difficulties last April and a temporary return to its proprietary system, Europcar International SA now has one of the largest installations of a Unix-based system worldwide.

Europcar's Greenway project became operational in February. Based on Sequent Computer Systems, Inc.'s multiprocessing Pentium servers and Oracle Corp.'s database, Greenway can handle up to 4,000 users simultaneously. The databases, located in Villepinte, France, are accessible from 960 Europcar offices equipped with PCs throughout Europe. Europcar is based in Paris.

Despite Greenway's present success, neither Europcar employees nor Perot Systems Corp., which was brought in to manage the installation, are ready to forget the many sleepless nights they spent putting the system back on track following its collapse last spring.

Maxed out

In April 1994, after appearing to be in satisfactory working condition while running 2,000 users simultaneously, some of Greenway's modules could go no further.

"We discovered some characteristics of the tuning and implementation of Oracle" that would not allow the system to fully function as it had originally been sketched out, explained Malcolm Stirling, Europcar's technical director in Villepinte.

As a result, the company had to go back to the mainframe for a while. Although the new Oracle-based reservation system stayed up throughout Europcar's European offices, the rental and operations modules in France and Germany were temporarily returned to big iron.

"It was not that much of a crisis in the fact that we managed to continue operations from a business perspective," Stirling said. "But it did, needless to say, cause the staff involved a significant amount of anxiety."

The major problem came from a bug in the Oracle Parallel Server database's Lock Manager feature, which had not been fully tested under high-usage conditions. But Oracle resolved the problem within "weeks," Stirling said.

As part of the solution, the system's hardware was also reinforced. The two Sequent Symmetry 5000 SE60 servers became four — three used for production applications and one reserved for management functions and backup in case of a principal server failure.

Network performance also improved, Stirling said, thanks to Ecopad from Synchronx. This terminal emulator manages characters locally on the client side and waits until a transaction is completed to transfer characters to the server for validation, he explained. Therefore, network traffic is cut back by up to 80%.

Ecopad improved the response time while also reducing the cost of transmission, Stirling said, which is particularly important because the project uses France Telecom's Transpac packet-switching service, which bills customers based on volume.

Following these fortifications, the system was eventually relaunched at the end of October in France and in November in Germany. The IBM mainframe that it replaced was scheduled to remain active until the end of January to manage active contracts.

Reimplementing Greenway could have happened much earlier, according to Perot Systems. But after the shock of the return to the old system and the high volumes that rental agents are faced with in the summer months, Europcar chose to wait until autumn.

Preserving the past

The final architecture is based on Unix, yet it preserves certain traits of mainframe computing such as the way it connects workstations to a large central system. Although Europcar's 3,400 workstations are essentially PCs equipped with Windows, terminal emulation is the sole method of communication among them.

"We're keeping it simple during the first implementation," said Stirling, responding to why Europcar chose terminal emulation instead of a more client/server-style architecture.

The Greenway project's intent was clear from the beginning: to offer clients a unified service throughout Europe, promising "one system, one Europe, one service." By choosing Unix to obtain this goal — particularly on a project of such size and importance — Europcar has proved the robustness of open systems, Stirling said.

"It was tempting to go for a traditional mainframe solution," Stirling said, because of information systems' comfort level with the tried-and-true. "But the team here had sufficient confidence in open systems. Their vision is now being realized in Greenway; you can build an open system of this scale and manage it."

Berger and Cunningham are correspondents for Le Monde Informatique *and IDG News Service, respectively.*

Greenway's driving force

Europcar's Greenway incorporates five Sequent 2000/750 computers running Oracle databases. Greenway, which handles tasks such as reservations for the car rental company, supports up to 4,000 simultaneous users. This makes it one of the largest Unix implementations in the world. Greenway was designed and implemented in part by Perot.

Replacing mainframes with Unix systems is not a new idea. But Europcar's strategy of using Intel x86-based computers instead of RISC workstations is becoming a trend, according to a recent study from market researcher International Data Corp. (IDC).

In 1993, Intel-based computers accounted for 42.2% of all systems running Unix, according to IDC.

Warehouse management

CA unpacks client/server version of CA-Warehouse Boss

By Thomas Hoffman

Computer Associates International, Inc. has started shipping its first client/server version of CA-Warehouse Boss.

The warehouse management package provides Windows-based clients with functionality similar to what is available on the IBM AS/400 version of CA-Warehouse Boss.

But perhaps the most significant enhancements to the warehousing package are the radio frequency data collection capabilities, according to prospective customers and analysts.

The RF data collection and RF-directed warehouse management "will bring up the accuracy of our picking areas quite a bit," said Ralph Johnson, MIS director at Ansell Corp. in Dothan, Ala., a division of latex products manufacturer Ansell International in Melbourne, Australia.

Johnson said his group had been achieving 99%-plus accuracy rates on its bulk and replenishment inventories using Andersen Consulting's DCS/Logistics software on two IBM 4381 machines. But Ansell is standardizing on Windows-based clients and AS/400 servers to bring commonality to its worldwide data. So Ansell is replacing its IBM 4381s and the Andersen software with an AS/400 and CA-Warehouse Boss configuration.

Increased accuracy

Plus, Johnson said he expects CA-Warehouse Boss to improve the accuracy of Ansell's "picking" operations — where the company's test orders are "picked" from bins and shipped to customers. These operations are currently only 75% to 80% accurate.

The RF-based warehouse management and other features have helped make CA-Warehouse Boss 4.1 "the most robust and mature warehouse management system in the client/server environment," said Robert George, a senior analyst at Advanced Manufacturing Research, a Boston-based consultancy. George said he was also impressed with the product's enriched rules-based architecture and automated materials handling capabilities.

Future server platforms being targeted for CA-Warehouse Boss include Hewlett-Packard Co.'s HP/UX and Data General Corp.'s DG/UX Unix environments running Oracle Corp., Sybase, Inc. and CA-Ingres relational database management systems, according to John Capobianco, vice president of research and development at Islandia, N.Y.-based CA. Capobianco said the HP/UX and DG/UX ports for CA-Warehouse Boss will be announced in September.

CA-Warehouse Boss 4.1 is available now, and prices start at $75,000.

Key features of CA-Warehouse Boss 4.1

- Unifies logistics management throughout the supply chain, including supplier, plant floor, warehouse and customer.
- Supports applications running on either PCs or application servers that communicate with CA-Warehouse Boss on an IBM AS/400. The database server is built on IBM's DB2/400 relational database engine.
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*As reported in Communications Week (6/27/94) and InfoWorld (9/19/94) **Gateways are available to over 40 different database platforms from Information Builders, Showcase Corporation, and other leading vendors.

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Tandem adds Unix to Himalaya servers

Kernel layer could cut porting time from two months to a day

By Mark Halper

Tandem Computers, Inc. this week will deliver on its longtime promise to add a Unix personality to its Himalaya line of proprietary NonStop servers.

To accomplish this, the Cupertino, Calif., company will add a layer to its NonStop kernel that it claims makes Unix applications easily portable. One of the first applications Tandem will offer will be a nonstop version of Novell, Inc.'s Tuxedo on-line transaction processing (OLTP) software.

The new operating system layer, which Tandem calls the Open System Services (OSS) environment, will allow some developers to port an average Unix application to Himalaya in less than a day, according to Chris Rooke, Tandem's director of product marketing. The porting task could take other developers about two months, Rooke said, noting that the length of the task will vary with the complexity of the application.

Rooke further noted that OSS adds support for the Open Software Foundation's Distributed Computing Environment (DCE) remote procedure calls and interface specifications.

The DCE components are intended to ease interoperability in mixed proprietary, Unix and PC shops. OSS also conforms to X/Open Co.'s XPG Release 4 and is Posix 1- and Posix 2-compliant.

As for Tandem, the addition of OSS should help the company compete with other proprietary server providers such as Hewlett-Packard Co. and IBM, which have been adding Unix functionality for some time. Although Tandem has been talking about putting a Unix face on its NonStop line for about two years, this week's announcement will mark its first commercially available product.

"This is something they've talked about for quite some time," said Laura Conigliaro, an analyst at Prudential Securities, Inc. in New York. "It's certainly later than you would like to have seen, but the fact is, Himalaya has picked up a lot of steam. And there's no question this should help continue that."

Strategy: To stay ahead

The OSS announcement comes on the heels of Tandem's introduction of the K line of Himalaya servers, a move that analysts said should help the company maintain its comeback [CW, Jan. 23]. Tandem recorded $170.2 million in profits for the fiscal year ended Sept. 30, 1994, following a year in which it lost $517.7 million.

One shop where OSS could help save Tandem is Revco D.S., Inc. in Twinsburg, Ohio. Ed Gropp, senior vice president of information systems, said the pharmaceutical chain has been contemplating moving its Tandem-based prescription filling system to a Unix platform such as the HP 9000, which drives other operations at Revco.

Having a Unix option on the Himalaya machine might mean Revco will continue to run its prescription program on the 21 Himalayas that now support the program.

"We're looking at extending the [prescription] application as well as at other applications, and it's all under consideration as to what we do," Gropp said.

But not all Himalaya users seemed eager to add Unix functionality. A spokeswoman for U.S. Bancorp. in Portland, Ore., for instance, said IS officials there declined to discuss OSS because "in the past, we haven't had any interest in running Unix."

Meanwhile, Rooke said the Tuxedo OLTP program is not intended to replace Tandem's own Pathway OTLP. Tandem plans to support both products, he said.

What's new at Tandem

Product	Availability	Price
Open System operating environment	Now	Server version: K2000, $950; K20000, $2,200 Application runtime version: $650 to $1,500 depending on server
Tuxedo transaction processing software	April for early adopters	K2000, $31,900 K20000, $66,700

Early adopters

Tandem said OSS customers include Motorola, Inc.'s Wireless Data Group in Richmond, British Columbia; The Online Computer Library Center in Dublin, Ohio; and Kredietbank in Brussels.

Briefs

Mexican airline returns to Unisys

After a five-month stint on British Airways' IBM-based reservations system, Mexicana Airlines has decided to convert back to Unisys Corp.'s USAS reservation system.

PeopleSoft doubles revenue

PeopleSoft, Inc. announced 1994 revenue of $113 million, nearly double the $58 million the company earned in the previous year. Profit came in at $14.5 million, up from $6.4 million in 1993.

NEC sells HP Unix server in Japan

Hewlett-Packard Co. last week said it had signed a three-year deal calling for NEC Corp. to sell high-end Unix servers based on HP technology. NEC licensed the HP/UX 10.0 operating system. Under the contract, NEC will first resell HP's top-of-the-line T500 Unix server. Eventually, NEC will make its own systems based on HP's PA-RISC processor. An HP spokesman said the deal is valued in excess of $100 million.

Unisys signs airline

Unisys Corp. has received a $2.2 million contract to provide information management services and client/server technologies to Malaysia Airlines for tracking freight shipments.

CA adds to CA-Unicenter team

Computer Associates International, Inc. in Islandia, N.Y., has added to its CA-Unicenter development team. Sam Greenblatt, formerly chief technology officer at Candle Corp., and Nigel Turner, formerly vice president of application engineering at OpenVision Technologies, Inc., will join CA.

Astea International, Inc. has announced PowerHelp 2.0, help desk software.

According to the Chalfont, Pa., company, PowerHelp 2.0 includes an object-based support architecture that lets users customize call tracking, identification and resolution to address each customer's specific needs without having to change the underlying source code.

The product lets information in the database be associated with any groupings of the customer or product base. Features include support for telephony standards, Microsoft Corp. Mail integration, relational database compatibility, security and graphical notes and triggers.

PowerHelp costs $2,500 per seat, with volume discounts available.

▶ *Astea International*
(215) 822-8888

Management Robotics, Inc. has announced SuperSked 5.4, labor scheduling software for supermarkets.

According to the Boulder, Colo., company, SuperSked 5.4 automatically schedules personnel across departments and job classes within the same shift based on skills and abilities.

Tasks can be defined as service, fixed or production. Managers can specify a skill level for each employee in each department. The product can also schedule an employee to work more than one job class during one shift in different departments.

SuperSked 5.4 costs $2,995 for a store license.

▶ *Management Robotics*
(303) 440-4191

Eventus Software, Inc. has announced WatchWorks 3.0, event monitoring software for Oracle Corp. relational database management systems.

According to the San Bruno, Calif., company, WatchWorks 3.0 forewarns administrators of potential database or system problems by automatically calling a beeper number, sending an electronic-mail message or faxing or printing information to a log file.

The product can restart a failed database or run a batch program without user interaction.

WatchWorks 3.0 monitors Oracle 6 and 7 databases. Prices start at $1,200.

▶ *Eventus Software*
(415) 871-0700

Invincible Technologies Corp. has announced the Ultimate-1/FX series of RAID Level 1 storage arrays.

According to the Franklin, Mass., company, the Ultimate-1/FX series is a 20M byte/sec. Fast Wide SCSI-II RAID 1 subsystem that provides 3½-in. hot pluggable SCSI-II drives, redundant power supplies and N+1 cooling.

The series was designed to provide an alternative to host-based mirroring for midrange servers and workstations and allows up to 34G bytes of storage per system. Head placement is optimized on the drives, so read requests can be handled by the mirrored pair member whose read/write head is closest to the file.

Prices range from $8,995 for a base system to $39,500 for a 34G-byte system.

▶ *Invincible Technologies*
(508) 520-3500

CMstat Corp. has introduced CMstat 5, configuration management and product data management software.

According to the San Diego firm, CMstat 5 uses a graphical user interface based on Computer Associates, Inc.'s CA-OpenRoad and gives Unix and Windows users a common desktop. Features include user-defined attributes and enhanced workflow management.

The product lets users access information in a different module without having to leave a currently active module. The database manages files and processes on the system.

Prices start at $995 per user.

▶ *CMstat*
(619) 552-6680

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Toronto bank rolls into object mode

By Kim S. Nash

Two years ago, no nne at Scotiabank had built an nbject, never mind written a Smalltalk applicatinn for an object-oriented database. But today, that is just what developers at the 1,200-branch Toronto-based bank are doing.

This week, Scotiabank plans to start user acceptance testing of an object-oriented deposit processing application designed to help new customers choose savings accounts. The module is nne of four that make up an object-oriented banking sales and services system at Scotiabank, which operates hranches in Canada and 45 other countries.

The new system will keep demographic information nn individual and commercial customers and help salespeople target investment, loan and other bank products to individuals. Today, that is done largely via text-based applications or paper and pencil "and the common sense of our employees," said Drew Brown, manager of systems development at the bank.

Testing the waters

Scotiabank has played around with object technnlogy for about a year. Developers built simple applications with various versions of the Smalltalk development language, including products from Digitalk, Inc., ParcPlace Systems, Inc. and IBM.

Information systems managers realized that object technology "is a bit of a religious war," Brown said. So the bank hired two different training and education firms to teach developers about object technology and to avoid being "pushed down one track or another," he explained. Scotiabank has spent more than $250,000 on educatinn related tn the object project, he added.

So far, five of 30 programmers have found the Cobol-to-objects transitinn tco difficult, Brown said, "which is fine because we have lots of legacy code to be maintained."

ON SITE

Scotiabank
Toronto

Challenge: To move applications off IBM ES/9000 mainframes running IMS while installing databases in 1,200 local bank branches; to cut development time by reusing code.

Technology: Versant object database, Versant Argus; ParcPlace Systems' Smalltalk language.

Expectations: To reduce development costs by cutting programming staff; to find new sources of revenue by collecting demographic data and cross-selling bank products.

Branching out

The project also marks the first time databases will reside at local hranches at all. Scotiabank standardized on object-oriented databases from Versant Object Technology Corp. in Menlo Park, Calif.

By putting database smarts at each branch, Scotiabank is shooting for more customizable applications. For example, not all branches offer the same loan, investment and other programs, so applicatinns could be modified to reflect those differences, Brown said.

Local databases also mean that each location can keep detailed data relevant tn its community, passing along nnly the appropriate summary information to corporate headquarters.

"Today everything comes up to the host, and that's just a waste of time and resources," Brown said.

Scotiabank's Drew Brown: *IS managers see object technology as 'a bit of a religious war'*

The bank aims to cut application development time by half or more once it has a foundation of objects stable enough to reuse, Brown said. But he does not expect to see that benefit for roughly three years because of a big learning — and mastery — curve for object programming. "We're committed to it long term," he said.

Fewer staff

The bank also has specific goals fnr staff rednctions partly as a result nf using object development techniques, Brown said. "We've said that we'd be able to . . . reduce the number nf technical people used to build the equivalent amount of function," he said, referring to a project plan submitted to management. Brown declined to say how many IS workers are expected to be cut or redeployed.

Helping sway the bank to choose the Versant database was its Argus development environment, said Mike Myers, manager of applications architecture. Argos "gives you an active repository and framework where you can make changes to your applications by changing a base model in Argos," Myers said.

In June, the bank expects to start user testing the next module, a loan application system. The entire nbject system is due out by this time next year.

Add-ons take Visual Basic beyond its limits

By Elizabeth Heichler

■ Corporate developers using Microsoft Corp.'s Visual Basic may be pushing it to its limits, but they are able to choose from an increasing array of add-on products that enrich the development environment.

Sheridan Software Systems, Inc. in Melville, N.Y., is launching a new version nf its VBAssist set nf programmer productivity tools this week. Next week, Progress Software Corp. in Bedford, Mass., will roll out a package of Visual Basic accessories from its recently acquired Crescent division.

And in recent weeks, both Performix in Westhills, Calif., and CenterView Software, Inc. in San Francisco have introduced tools fnr Visual Basic programmers (see chart).

"Visual Basic is a great tool, but you start realizing its limitations right away," said Christopher Waters, senior applications software engineer at SBM Computers and Communications Corp. in Easton, Pa. "VBAssist simplifies a lot of the tedious work [Visual Basic] imposes on you."

Waters uses Visual Basic as the primary development environment for client/server applications developed for his company's customers in the manufacturing, chemical, travel and health care industries. He has used add-on products along with the Microsoft language for about three years.

Waters is beta-testing the new version nf VBAssist and said he is happy with the results so far because the software's resource utilization has greatly improved.

"One of the big problems with VBAssist used to he that you couldn't keep much more open [on the Windows 3.1 desktop] than [Visual Basic] and VBAssist because you didn't have enough resources," Waters said. Now he can work with Visual Basic, VBAssist and nther Windows applications simultaneously without fear of a system crash.

New Visual Basic add-ons

Sheridan Software Sy
VBAssist 3.5
Set of productivity t
application develo
$179

Performix
Drag-it/VBX
Drag-and-drop
Visual Basic ap
$295

CenterView Sof
Choreo for Visual B
SQL data access
$595

VBAssist 3.5 also has a cleaner user interface than previous versinns, with tools and utilities better organized than in the past, according to Lou Attanasi, project manager for design at Blackbaud, Inc. in Charleston, S.C. Blackbaud is a software company that specializes in applications for nonprofit organizatinns.

New features in VBAssist 3.5 include the ability to position and move controls in increments of a single pixel without using the mouse, and a clipboard history that keeps track of past clipboard items, including text, bit maps and Visual Basic controls.

VBAssist 3.5 will ship on March 15 and retails for $179, Sheridan said.

Elsewhere, Progress Software's Crescent division — the former Crescent Software, Inc. — plans to unveil PowerPak Pro next week. It is the first new product release since Progress acquired the Visual Basic add-on specialist in January.

A company spokesman declined to divulge pricing nr details about what will be included in PowerPak Pro but said it will include existing tools from Progress and Crescent. PowerPak Pro will also include third-party Visual Basic custom controls (VBX), which are standard software components that can be included in Visual Basic applications.

All the tools and components have been tested to ensure that they work together without problems, come with a unified install procedure and will be supported by Progress although they may have been developed by small VBX shops, the spokesman added.

Meanwhile, for programmers developing client/server applications with Visual Basic, CenterView Software recently released Choreo fnr Visual Basic. The component-based software is now shipping and costs $595.

Most client/server development tools force your programming team's applications to be driven by the outward appearance of things.

It's akin to putting up the walls, windows and doorways of a building before the foundation and support beams are in place. You can build a small cottage that way, but you can't build a safe and stable skyscraper.

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MANAGING THE ENTERPRISE.

Smooth transition to Visual FoxPro

By Jeffrey Gordon Angus

Microsoft Corp.'s first version of Visual FoxPro suggests that its creators have learned a lot from past efforts. The beta version of this desktop database has a promising future in helping the vast number of Xbase programmers develop object-oriented programs for Windows.

When Microsoft came out with its first Windows visual programming product, Visual Basic, it was popular, but it wasn't "Basic."

Visual FoxPro is different. You can make FoxBase programs run in Windows if you have been writing generic code. Its flexibility lets you convert slowly from old-style Xbase modes, one piece at a time, to the new style, which can greatly advance your productivity. The product also gives you access to the command line, displaying command-line equivalents of menu-executed instructions and allowing direct entry of commands.

The product's development environment centers around the Project Manager, a tabbed selection box that gives you access to all parts of the application — code, data tables, reports, queries, etc. This approach is now typical for Windows database products, but this product provides a useful innovation. Each listed object type is part of an outline. If you double-click on the Databases selection, it opens up an indented list of the databases in the project; double-click on Table in that database, and it opens up a further-indented list of tables; double-click on a table's name, and it provides a list of fields.

From here, you can right-click on any of these objects to access a set of functions specific to them.

As a modern Windows product, the database application development environment comes with wizards — utilities that take you through a sequential set of question-and-response screens to build an object, such as a data-entry form or a report. Visual FoxPro also has wizards for making tables, queries, mail-merge operations and data import from other formats.

Visual FoxPro uses the almost universal Windows database model of complex properties sheets that describe every attribute of every object. Properties sheets give an immense amount of information and directive muscle, but they make construction very time-consuming.

Enter object orientation. By supporting inheritance — the ability to construct an object, describe it and then copy it while retaining its attributes and behaviors — you can create a report object and use it as a factory to generate new reports quickly. By supporting "subclasses," you can create these basic templates in a hierarchical chain of inheritance.

Developing multiuser applications is easier. New intrinsic record- and table-locking capabilities shorten code-writing time, and SQL pass-through makes Visual FoxPro a more complementary front end for client/server applications.

This beta version leaves questions open, as do all betas, which are essentially works in progress. The code is beyond big — requiring more than 40M bytes of disk space — it is s-l-o-w.

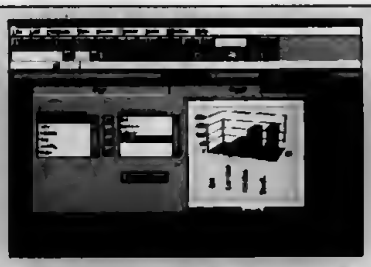
Visual FoxPro is as easy an entry into programming applications for a graphical user interface (GUI) as Windows has seen yet. It will challenge developers who have not been developing GUIs, but this version has impressive features and avoids the worst productivity failures of past attempts.

The product has not yet been priced. It is due to ship this spring.

Angus is a project director at The Data Works Ltd. in Seattle.

PRODUCT test DRIVE

Visual FoxPro 3.0 Beta version
Microsoft Corp.
Redmond, Wash.
(800) 426-9400



Visual FoxPro's *OLE 2.0 capabilities allow access to this three-dimensional Excel chart and tool bar*

■ The object-oriented features of this version of the desktop database make for smoother transitions to visual environments than were possible with previous Microsoft products.

■ Despite its large memory requirement (40M bytes) and slow performance, this beta product holds a lot of promise for simplifying multiuser database application development.

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Frank Monteleone

A good SAP is hard to find

All across the land, calls are being made to recruiters. The conversations go something like this:

"Get me some good people with SAP R/3 experience right away. We just purchased it and start implementation in two days. What's that? OK . . . OK, then any SAP experience will have to do. R2, D2, U2 . . . I don't care, as long as they know something about SAP. What's that?. . . OK . . . They don't have to be too good, but they do have to be people. That's a firm requirement."

This feeding frenzy for SAP implementers is nuts. Consulting firms are stealing people with SAP know-how from one another and one another's clients. In fact, they are bidding so high that some SAP experts are getting salaries equal to that of a utility infielder on the Cincinnati Reds (or what it was before baseball went on a temporary leave of insanity).

In any free market, the price will continue to rise when demand is increasing faster than supply. SAP continues to sell software faster than people are learning it. Because consulting companies are cornering the market on the small supply of SAP expertise, they are getting fat on SAP implementation projects and are passing the increased costs on to the customers who purchase and want to quickly implement SAP.

This situation is causing some disillusionment with R/3, which is otherwise regarded as a very good product. In fact, some people are mad as hell.

Having directed a project that selected R/3 for a reengineered supply chain process — and then leading (while simultaneously being led by) a consultant to implement it — I considered capitalizing on this knowledge and getting myself a 900 number to offer expensive advice (1-900-CALL-A-SAP for $14.99 per minute). But because I don't like talking on the phone all day, I've decided to share it through this fine publication instead.

R/3 differs from other software packages in the following ways:

- It's really more of a customization than an implementation.
- The users of the system — not a bunch of programmer/analysts — need to customize it. If the users know Windows, they can navigate through SAP screens. Their knowledge of your business process is the critical success factor. Your IS people know your data and need to team with users on an equal basis.
- R/3's strength is the integration of the modules. This is also a source of anguish when you implement only some of those modules. It is why you need to find, or make, those scarce SAP specialists.
- It's not as hard to learn SAP as everyone seems to think. It's just the number of implementation options that intimidates people.
- R/3 will probably force you to change some of your processes to fit within its range of tailorability. Modifying SAP code is suicidal unless you can persuade SAP to do it and incorporate the changes into the product.

Some other pieces of advice

- SAP implementers/specialists don't exist — not in the U.S. anyway. So stop looking for them for at least 18 months.
- It's best to train your own people anyway. Do it as soon as possible and install a test system so they can experiment. The best way to learn SAP is hands-on training.
- You can get help with the initial implementation of SAP by using the initials IBM, DEC or HP. Each of these hardware vendors has knowledgeable people who can help size (for a size) and install SAP. If you're real nice to them, they will even sell you some hardware to use as database and application servers.
- The most critical person you need is a good project manager. He needs a high-level SAP consultant to create a realistic implementation strategy. This is who you should spend the big bucks to get from a consultancy.
- If you do hire implementation consultants, make sure you have at least a 50-50 mix of your own people on every phase of the project. Don't let your project become a training ground for a bunch of consultants who will learn at your expense and take that knowledge out the door with them.

One final piece of free advice. Not only should you invest significantly in training your people for a SAP conversion, but you should also give them incentives to stick around until it's complete. Otherwise, their phones will be ringing — and it won't be the Cincinnati Reds looking for a second baseman.

Monteleone is an information technology director in the Midwest and can be reached at fmmont@aol.com.

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Poet Software Corp. has announced Poet 3.0, object database software.

According to the San Mateo, Calif., company, Poet 3.0 stores C++ objects to be used and shared on numerous desktop platforms.

The product features a C++ application programming interface that lets users program via the Poet class dictionary. Microsoft Corp.'s Object Linking and Embedding 2.0 and Object Database Connectivity are supported. Database features include on-line backup, object check-in/check-out and an object query language subset.

Poet 3.0 Personal Edition costs $499. Poet 3.0 Professional Edition for Windows for Workgroups costs $1,999.

▶ *Poet Software*
(415) 286-4640

Adaptive Solutions, Inc. has announced CNAPS/PC, a Windows software development environment for image processing and recognition applications.

According to the Beaverton, Ore., company, CNAPS/PC lets users write parallel processing programs from a PC. Tools include a parallel C compiler, assembly language and assembler as well as a debugger.

The product operates as a parallel coprocessor, leaving the main CPU to control system and interface tasks.

CNAPS/PC costs $9,995.

▶ *Adaptive Solutions*
(503) 690-1236

Thompson Software Products has announced TeleUse/Win, an interface development environment.

According to the San Diego company, TeleUse/Win lets users develop and migrate the Open Software Foundation's Motif graphical user interface Unix applications to Windows. TeleUse/Win16 automatically maps OSF/Motif widgets to Windows objects and generates native C++ code.

TeleUse/Win32 lets users port TeleUse-generated applications to any 32-bit PC running Microsoft Corp.'s Windows NT. The product uses the standard X/Motif application programming interface and a class library that translates OSF/Motif components into a Windows look and feel.

TeleUse/Win costs $3,500 for a single development license.

▶ *Thompson Software Products*
(619) 457-2700

Advanced Software Technologies, Inc. has announced Graphical Designer, a Unix-based computer-aided software engineering tool.

According to the Littleton, Colo., company, Graphical Designer speeds the development of applications for Unix, Windows and Macintosh platforms.

Users can select an object-oriented methodology or create a custom methodology to express high- or low-level designs in a graphical format.

Prices start at $4,999 for the first seat.

▶ *Advanced Software Technologies*
(303) 730-7981

TechBridge Technology Corp. has announced TechBridge Builder for OS/2 1.2, a visual development tool.

According to the North York, Ontario, firm, TechBridge Builder for OS/2 1.2 provides an object framework that interfaces with DB2 and includes transaction management, work unit integrity, schema importing and catalog fetching.

Features include a master detail data display, notebook control within a form, automated display of three-dimensional graphics on a query form and support for IBM's OS/2 Warp.

TechBridge Builder for OS/2 1.2 costs $2,850 for the enterprise version.

▶ *TechBridge Technology*
(416) 222-8998

Digitalk, Inc. has announced Visual Smalltalk 3.0 and Visual Smalltalk Enterprise 3.0, client/server tools.

According to the Santa Ana, Calif., company, the products feature source and binary portability between OS/2 and Microsoft Corp.'s Windows NT, a binary format, improved memory management tools and support for IBM's System Object Model and Distributed System Object Model. The tools also provide more than 70 prebuilt parts and 2,000 classes.

Visual Smalltalk Enterprise 3.0 provides a team development framework as well as a library builder/binder, configuration management and Intersolv, Inc.'s PVCS Version Manager software.

Visual Smalltalk 3.0 costs $1,495, and Visual Smalltalk Enterprise 3.0 costs $4,995.

▶ *Digitalk*
(714) 513-3000

Visible Systems Corp. has announced Visible Analyst Workbench (VAW) 5.4, a computer-aided software engineering application development tool.

According to the Waltham, Mass., firm, VAW 5.4 includes an enhanced Powersoft Corp. PowerBuilder interface, Uniface bidirectional interface support and enhanced repository customization capabilities. It also includes enhanced relational database management system importing and exporting and a repository-based object format.

Prices start at $2,795.

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Tunnel Visio

Steve Bell

Information systems departments hold the key to making ergonomics problems better or worse for computer users, but their lack of involvement is often painfully obvious.

By Robert S. Dieterich

Tom Cosentino, a health and safety manager at Hoechst Celanese Corp. in Bridgewater, N.J., found a simple way to drive home the message that his company needed a computer ergonomics program.

"I convinced my boss really easily," he explains. When his boss was present, Cosentino asked one of the company's secretaries how her hands felt: "She said, 'Oh, they go numb after about half an hour of typing, but if I shake 'em real hard, the feeling comes back.'" Cosentino received the go-ahead for an ergonomics program, and the secretary's symptoms improved.

Ergonomics is a science that aims to make machines easier and safer to use. Cosentino says a well-designed ergonomics program forms a bulwark against cumulative trauma disorders (CTD), a group of diseases affecting the musculoskeletal system that are caused by repetitive motions such as typing.

By most reports, ergonomics is not a field that IS professionals have embraced. Steve Koppel, spokesman for the Society for Information Management in Chicago, concedes that his organization has done nothing in this area. "It's probably more of a human resources thing," he says.

But ergonomists, trainers, safety experts and facilities managers say IS departments, whether they know it or not, hold the key to making CTD problems better or worse.

"When I first meet a new client's ergonomics team, I say, 'Where's the guy

Tunnel vision, *page 78*

IS departments often create or compound ergonomics problems by not planning properly. Common examples include the following:

Example #1

- **Action:** IS planners decide to install Windows for a group of users who have their keyboards on adjustable trays beneath their desktops.
- **Problem:** You can't use a mouse on a keyboard tray, so everyone is reaching to the desktop to use the mouse.
- **Result:** Strong likelihood of causing arm and shoulder pain. A trackball [illegible] solution.

Nancy Larson, ergonomics specialist, American Express

Tunnel vision

Continued from page 77

from IS?' I usually get this blank look," says Robert Bettendorf, the consultant who designed Hoechst Celanese's program. The IS group is responsible for selecting and purchasing new equipment, he points out; more often than not, IS staffers install the hardware on employees' desks.

"The bottom line is that the IS people need to be involved in this issue, and they're not," says Bettendorf, president of the Institute for Office Ergonomics in Manchester, Vt.

A high price to pay

Cosentino, who monitors the health of approximately 500 computer users, raises strong arguments in favor of addressing computer ergonomics. First and foremost: A CTD outbreak can be expensive.

The secretary with the numb hands was exhibiting symptoms of carpal tunnel syndrome.

"When I first meet a new client's ergonomics team, I say, 'Where's the guy from IS?' I usually get this blank look.... The bottom line is that the IS people need to be involved in this issue, and they're not."

Robert Bettendorf, president of the Institute for Office Ergonomics in Manchester, Vt.

One of the most disabling conditions under the CTD rubric, carpal tunnel syndrome is caused when inflammation and swelling from repetitive movements and other factors pinch the median nerve where it passes through the bones of the wrist. First comes a loss of feeling in the hand and then a loss of strength. In severe cases, even simple tasks become difficult and extremely painful.

The government reports that no workplace injury or illness requires a longer recovery period than carpal tunnel syndrome: A worker suffering this condition spends a median time of 32 days away from work, according to statistics released last year by the Department of Labor. That translates into employer expenses for lost productivity, workers' compensation and medical treatment.

In this case, the secretary's workstation was adjusted (the work surface she typed on needed to be lowered — a common problem), and she attended a training session to learn how to work more safely. Her symptoms have gone away, Cosentino says.

He emphasizes that problems such as these are not widespread at Hoechst Celanese. He was not reacting to an outbreak of CTD but was acting on the potential for a problem. In this field, prevention is clearly better than cure: "The motivation is to keep the number of people with CTD problems very low," Cosentino says.

Reducing the number of injured employees is the "hard dollar" justification a manager needs to recommend an ergonomics program to cost-conscious executives, according to Nancy Larson, an ergonomics specialist at American Express Financial Corp. in Minneapolis. But it is the prevention of CTDs that will show up in workers' compensation claims, medical claims, missed work and restricted work statistics and government health and safety logs.

Larson, who oversees ergonomics programs for 4,000 home office employees, says an ergonomics program has another important benefit: It tells employees that the company values their health and the work they do.

Working solution

At American Express, the number of injury claims was increasing by approximately 20% per year, Larson explains. They remained at a low level compared with other similar work environments, she says, but the trend was worrisome. The program is still new, but Larson sees indications that it is working. In a survey of employees, the number of people reporting almost daily musculoskeletal discomfort dropped from 11% of employees in 1993 to 7% in 1994.

Wayne Maynard, an ergonomist and director of training at Liberty Mutual Insurance Group in Boston, confirms the high toll that ergonomics problems take on workers' compensation benefits. In some industries, he says, it is the single biggest, most expensive compensation category.

Like Larson, Maynard argues that awareness of ergonomics must cut across departments. "Human resources people are generally aware of this issue," he says. IS managers are less so.

What role does IS play? As often as not, IS departments cause more ergonomics problems than they solve.

Bettendorf points to many pitfalls. For example, IS planners may decide to install Windows for a group of users who have their keyboards on adjustable trays attached beneath their desktops. "And guess what? You can't use a mouse on a keyboard tray, so everyone is reaching to the desktop to use the mouse," he says. This is a good way to cause arm and shoulder pain, Bettendorf says.

Overall, Bettendorf argues, ergonomics need not impede anyone's technology plans. "But IS departments can create a lot of havoc if they don't do the proper planning."

Sharing the burden

Any number of departments can have the ultimate responsibility for ergonomics, says Larson, who is in the facilities group. The manager responsible for ergonomics could also be found in risk management, human resources or IS. The important thing, in Larson's view, is that someone has ergonomics "at the top of the to-do list." And regardless of who drives the effort, "for a comprehensive program, the IS side needs to be involved," she says.

"Ergonomics belongs everywhere," Larson adds, "and that's part of the dilemma." If the right people are not involved, you're asking for trouble. On the other hand, everyone can benefit when an ergonomics program becomes an integrated part of a company's technology management.

Larson says the relationship between her department and IS has begun to move in two directions. Currently, she is helping assess what job functions would benefit from having larger monitors, "based on productivity issues and the criticality of errors," as the company upgrades to OS/2.

This knowledge will help IS spend money where it can have the greatest impact.

"As long as it's supported, everyone benefits from a strong ergonomics program," Larson says. ■

Dieterich is a freelance writer in New York.

PORTRAIT OF A CTD OUTBREAK

The Los Angeles Times *staff suffered an outbreak of CTD in the late 1980s, prompting a large-scale study by the National Institute for Occupational Safety and Health in Cincinnati.*

Percentage of *LA Times* employees reporting CTD symptoms in these areas of their bodies:

IS managers seeking information on how to prevent ergonomics problems may want to attend the Human Factors and Ergonomics Society's 39th Annual Meeting Oct. 9 to 13 at the Sheraton Harbor Island Hotel in Santa Monica, Calif. This year's theme will be "Designing for the Global Village."

The meeting will feature more than 300 technical sessions on a range of ergonomics issues, including computer systems, office [illegible]

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Milan Moravec

Untangling performance management

To be competitive these days, organizations have to make sure all employees learn and contribute at their utmost. Performance management reviews and appraisals should be geared to this result. But too often they operate on yesterday's assumptions.

Here are some outdated paradigms that must be discarded:

- Performance management should be designed, as the name suggests, to support managers.

If you believe this, your management is probably a roadblock to performance. The most useful performance management process supports work relationships between employees and supervisors. Both parties need to address the question of how best to serve the company's mission, vision, values and customers — together. Results are powered by partnerships.

- Performance evaluation is a management skill.

Supervisors are not necessarily the best qualified to assess their staff's performance. In fact, they may have a very limited or biased view. A more complete picture results if employees and supervisors seek feedback from a variety of customers, colleagues, team leaders and others inside and outside the firm. To do this, they must decide who should collect this information, and how. Ideally, performance management involves 360-degree feedback. Supervisors can then benefit from employees' observations about how the unit is being managed. Teams should also periodically review their own performance as a group and the interpersonal dynamics within the team.

- Performance discussions have to include judgment: pronouncements and assessments from a "higher authority."

Judgment produces compliant employees — people who expect to be told what to do — not innovative ones. Employees dread performance reviews because most of them are conducted in a parent-child, faultfinding context. When sessions are used to support the organization's status quo, they veer toward the "gotcha" and sometimes get stuck there. How much better to simply ask, "What did we learn from this? What can both of us do to improve the outcome next time?"

- The supervisor is responsible for obtaining input from the employee.

Empowered employees can't assume a passive role in performance management, providing self-assessments and other information only on request. They must take the initiative, soliciting feedback from their supervisors and others. And they should do it continuously, as a function of the work that's going on, not just for a formal performance review. They should seek learning opportunities and request help when a goal isn't being achieved rather than attempt to cover up inadequacies. No risk taking and no learning means no improvement. No improvement means abdicating responsibility.

- Supervisors should be trained in performance management, then prepare their employees for the process.

If performance management is to be a productive partnership, with empowered employees taking an active role and both parties committed to exchanging knowledge and ideas, supervisors and employees need to be trained together.

Simultaneous training ensures that everyone operates with the same information and expectations. Customers of the process, particularly internal ones, can be included. They can even help design the performance management process.

Learning organizations are not served by the old, top-down ways of managing performance. When employees and supervisors know how to assume responsibility, set objectives together and challenge paradigms in a spirit of positive alliance, learning and competitiveness rise simultaneously.

Moravec is president of Moravec and Associates in Walnut Creek, Calif.

Executive Track

W. R. Grace & Co. in Boca Raton, Fla., has announced the appointment of **Stephen E. Karinshak**, 51, as corporate vice president and chief information officer. He will be responsible for implementing the company's global strategic plan for information services by aligning and further developing information technology throughout the company. Prior to the appointment, Karinshak was vice president of finance and administration at Grace Packaging's Cryovac unit. He previously held positions in the Cryovac unit as chief financial officer, director of marketing and director of MIS.

Duke Power Co. in Charlotte, N.C., has announced the appointment of **Cecil Smith** as vice president of information technology services and CIO. He will be responsible for the utility's strategic, technological and organizational functions as well as the information technology unit's infrastructure. Prior to the appointment, Smith was executive vice president of information services at Wachovia Operational Services Corp. in Winston-Salem, N.C.

American Management Systems, Inc. in Fairfax, Va., has announced the appointment of **H. Eric Firdman** as senior consultant of strategic information systems in the Mobile Communications Industry practice. Firdman reports to Ed McCabe, vice president of the Mobile Communications group. Firdman will direct business process re-engineering and strategic consulting service efforts. Prior to the appointment, he was director of new IS technologies at Pacific Bell in San Ramon, Calif.

Bank of America National Trust & Savings Association in San Francisco has announced the appointment of **Tsvi Gal** as senior vice president of IS. Prior to the appointment, he was vice president of IS at Wells Fargo Bank in San Francisco.

BMG Entertainment (Bertelsmann Music Group) in New York has announced the appointment of **J. Scott Dinsdale** as vice president and CIO. His responsibilities will include the development, operations and overall direction of IS. Prior to the appointment, Dinsdale was vice president of applied technologies at Merrill, Lynch, Pierce, Fenner and Smith.

John Hancock Financial Services in Boston has announced the appointment of **Charles G. Rayburn** as vice president of retail information services. He reports to Senior Vice President Rob Marra in retail service and systems. Prior to the appointment, Rayburn was director of information technology at Pepsico, Inc. in Purchase, N.Y. He has held positions in IS management at General Cinema Corp. in Parsippany, N.J., Deloitte & Touche in Boston, Noranda, Inc. in Toronto and Hoffman-Laroche Ltd.

The Healthcare Information and Management Systems Society (HIMSS) in Chicago has announced several recent appointments among its membership. **Richard D. Lang** has been appointed vice president of integration services at **Hartford Hospital** in Hartford, Conn. He was formerly manager of data processing at St. Francis Medical Center in Trenton, N.J.

Dennis P. L'Heureux has been appointed CIO at **Rockford Health System** in Rockford, Ill. He was formerly principal at IR Consulting in Woonsocket, R.I., and president of HIMSS. **Mychelle M. Mowry** has been appointed to the medical staff of **HealthOne** in Englewood, Colo. She was previously director of nursing information systems at Cedars-Sinai Medical Center in Los Angeles.

David G. Seiman has been appointed vice president of information services and CIO at **The Toledo Hospital** in Toledo, Ohio. He was previously director of information and networking services at the University of Michigan Medical Center in Ann Arbor, Mich. And **Judith N. Wells** has been appointed vice president of information services at **RWJ Health Care Corp.** in Hamilton, N.J. She was director of information services and communications at Germantown Hospital and Medical Center in Philadelphia.

Konica Business Machines U.S.A., Inc. in Windsor, Conn., has announced the promotion of **Arthur Fino** from IS manager to director of information services technology. Fino will be responsible for computer technical support, applications programming, computer operations and IS strategic planning. He reports to John Heagney, executive vice president of corporate planning and marketing.

Gannett New Media, a division of Gannett Co., has announced the appointment of **John Palm**, 56, as president. He succeeds **Thomas J. Farrell**, who resigned from the media division last month to face charges of insider trading. Palm was formerly vice president of systems at Gannett Co. in Arlington, Va. **Mark Morneau**, 43, has been named to succeed Palm, with responsibility for Gannett's corporate IS department. Morneau had been vice president of systems and programming at Gannett.

Lincoln National Life Insurance Co. in Fort Wayne, Ind., has announced the appointment of **Michael L. Wright** as senior vice president and CIO. He succeeds **Robert K. Malik**, who resigned last December. Wright will be responsible for information technology, business systems development, data center operations and software acquisition.

Millitope Group, Inc. in Montgomery, Ala., has announced the promotion of **Edward F. Crowell** to vice president of human resources and administration. He will also oversee the computer and peripherals manufacturer's IS operations.

SNET, a telecom services vendor in New Haven, Conn., has announced the appointment of **Richard LeFave** as vice president and CIO. LeFave had been CIO at American Express Co.'s Thomas Cook Travel unit in Cambridge, Mass.

Calendar

MARCH 19-25

Object World. Boston, March 19-23 — Contact: IDG World Expo, Framingham, Mass. (508) 879-6700.

Life Office Management Association Systems Forum and Exhibit 1995. Orlando, Fla., March 19-22 — Life insurance industry conference featuring more than 800 management and technical sessions in areas such as data security, client/server technology and LANs. Contact: Guide International, Chicago, Ill. (312) 245-1599.

National Fiduciary and Securities Operations Conference. Orlando, Fla., March 19-22 — Features 30 concurrent sessions divided into five categories: management, securities, products and services, technology and global custody. Contact: American Bankers Association, Washington, D.C. (202) 663-5000.

FOSE '95: America's Integrated Information Technology Exposition. Washington, March 20-23 — Contact: Reed Exhibition Co., Silver Spring, Md. (800) 791-3673.

PCB Design Conference. Santa Clara, Calif., March 20-24 — Focuses on emerging technologies used to design and manufacture printed circuit boards. Contact: Yolanda White, Miller Freeman, Inc., San Francisco, Calif. (415) 905-2354.

The Business Side of Software and Technology Licensing. Atlanta, March 23-34. Will also be held April 20-21 in Chicago and June 8-9 in Washington — Fee is $1,375; member discount price is $1,195. Contact: American Management Association, Saranac Lake, N.Y. (800) 262-9699.

What's Next.

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COMDEX/Spring '95 WINDOWS WORLD '95

MARCH 26-APRIL 1

The Sixth Annual Commercial Lending Executive Conference. Irving, Texas, March 26-28 — Theme: "Banking on Change: Tomorrow's Bank, Today's Leaders." Contact: BancA/Andersen Consulting, Dallas, Texas (214) 761-8127.

National Automated Clearing House Association 1995: Electronic Payments, Business Solutions. New Orleans, March 26-29 — Focuses on radical changes in the way corporations, consumers, governments and financial institutions exchange information and payments. Contact: National Automated Clearing House Association, Herndon, Va. (703) 742-9190.

The Natural Conference. Boston, March 26-29 — Topics include event-driven programming, graphical user interface design, object-oriented programming and design and programming techniques in the client/server environment. Contact: Jim Wisdom, The Natural Conference Committee, Boston, Mass. (617) 342-3660.

Financial Executives Institute's Information Management Issues Conference. San Jose, Calif., March 27-28 — Contact: Laura Zepp, Financial Executives Institute, Morristown, N.J. (201) 898-4629.

Networld/Interop '95. Las Vegas, March 27-31 — Topics include enterprise applications, networking management, practical LANs, network connectivity, practical Internet and switched networks. Admission is free. Contact: Softbank Expos Conference Co., Foster City, Calif. (800) 488-2883.

Automated Manufacturing Exhibition and Conference. Greenville, S.C., March 28-30 — Contact: South Carolina State Board for Technical and Comprehensive Education, Columbia, S.C. (803) 737-9355.

Advanced Manufacturing Technology Conference. Cleveland, March 29 — Sponsored by Advanced Manufacturing Research, Inc., Boston, Mass. (617) 542-6600.

Protecting Your Information Assets. New York, March 29-30 — Topics include detection and prevention of network viruses. Contact: Jerry Fireman, Inc., Birmingham, Mich. (810) 540-5610.

APRIL 2-8

Data Warehouse & Decision Support Systems '95. Rockville, Md., Arlington, Va., April 3-6 — Sponsored by Barnett Data Systems. Fees: one or two attendees is $1,295 per person; three to nine attendees is $1,000; 10 or more is $900. The exposition costs $25 per person. Contact: Barnett Data Systems, Rockville, Md. (301) 762-1288.

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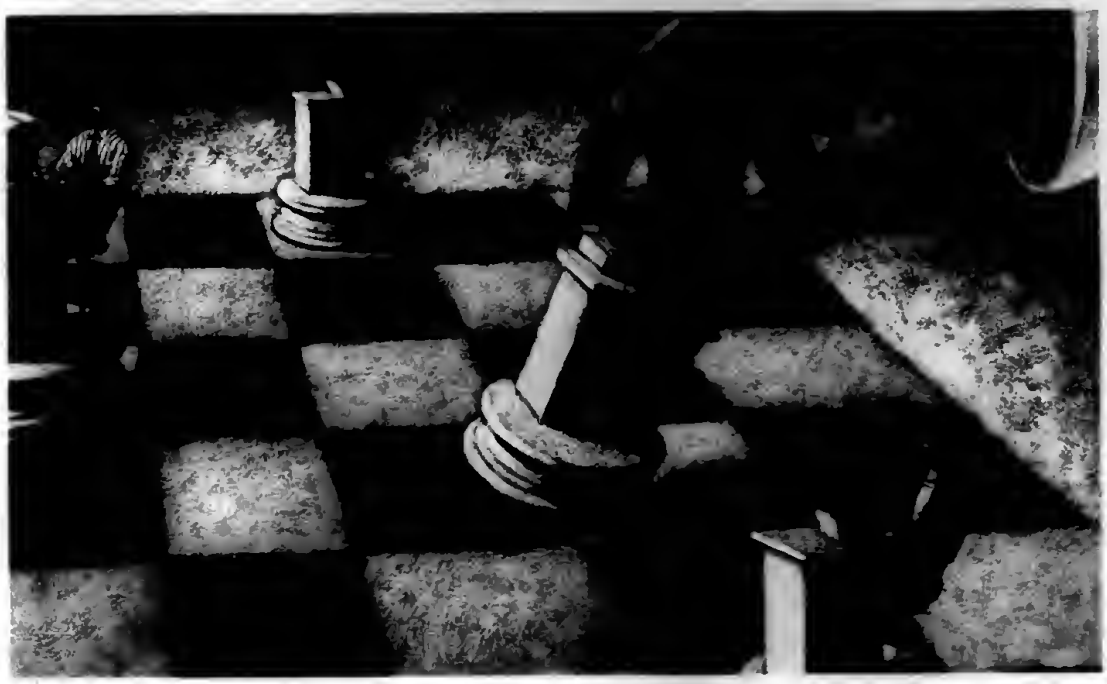

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Miss Manners' Guide to Excruciatingly Correct Internet Behavior

BY VIRGINIA SHEA

Judith Martin (a.k.a. Miss Manners) schools gentle 'net surfers on how to act properly on-line

ONE NEVER PLANS to be a manners guru. But thanks to the work of Judith Martin — better known as Miss Manners — I wasn't a complete etiquette ignoramus when I started writing my book, *Netiquette* (Albion Books, 1994). I've been reading Miss Manners' syndicated column since she started writing it in 1978.

Miss Manners has commented extensively on how to behave correctly in almost every situation in American life. So why not in cyberspace? When the opportunity to interview her came up, I decided to ask her what she thought about a few of the on-line world's more irksome conflicts. Here's what she had to say:

Virginia Shea Let's start with a business scenario: I'm working on a project for upper management, and I E-mail a fairly urgent request for information to a middle manager. She doesn't respond. Later in the day, I run into her in the hallway, and she says, "Oh, I had about 20 E-mail messages this morning, so I didn't read any of them." Her implication is that E-mail is a technological annoyance that she can ignore. I think that if she's not reading her E-mail, she's not doing her job. Who's right?

Miss Manners E-mail is something [that falls] between the telephone and snail mail, which is what makes it so very useful. If you define E-mail as something you must read and answer immediately, then basically you've reinvented the telephone. The telephone is useful because it interrupts people, and it's a nuisance because it interrupts people.

In thinking about precedence in business, someone who is standing in front of you comes first, the telephone second, E-mail third and letters or faxes are fourth.

However, if you are in a business in which most of your work is done by E-mail, and everybody agrees that it's a priority, that's something else. Any company can make its own internal rules about when to tend to things.

Shea Because E-mail can go essentially from the writer's brain to the recipient's screen, people often press the "send" button on messages they probably wouldn't put in the mail. So here's the situation: A colleague sends me E-mail saying that he doesn't like some work I've done, and he says some rather nasty things. Of course, my immediate response is to want to flame right back at him. Is that a good response?

PHOTO ILLUSTRATION OF JUDITH MARTIN BY LARRY GORDON/FREELANCE

Miss Manners' overriding rule *of all of etiquette: 'Behave yourself!'*

Miss Manners The etiquette rule is that you do not respond to rudeness with more rudeness; it doesn't solve the problem. So you treat him with the proper reaction to rudeness, which is not to [act as if] everything is fine. You get rather stiffly polite, and you steer somewhat clear of that person until he realizes he's done something awfully wrong.

Shea Most employees feel their E-mail should be private. But some employers argue that, because they own the computers, they have the right to monitor E-mail. Who is right?

Miss Manners Are we talking about company time? They shouldn't be making personal phone calls on company time, either.

I think the real answer to the question is that anybody who *assumes* that E-mail is private, even in a company that does not monitor it, is a

Miss Manners, *page 87*

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Miss Manners

CONTINUED FROM PAGE 85

fool. E-mail should be regarded in the nature of, say, a postcard. Nobody's supposed to read your postcards, but I wouldn't write my secrets on one.

Shea: Are there business interactions that absolutely should not be handled by E-mail?

Miss Manners: I wouldn't fire someone by E-mail, or hire someone by E-mail, or quit or ask for a raise, for several reasons — among them privacy and the nuances of human interaction.

Larry Gould/Other Images

Shea: Last year, a husband-and-wife team of immigration lawyers posted an ad to Usenet. They didn't just post it to a few groups; they "spammed" it — sent it to thousands of Usenet newsgroups. This broke two major rules of 'netiquette: first, that you don't advertise on Usenet, and second, that you post within the subject matter of the newsgroup.

So whose crime was worse: the lawyers' or [that of] the people who flamed them, mail-bombed them or sent them death threats?

Miss Manners: [Laughs] That doesn't give me much to choose from! What [the lawyers] did is the equivalent of my coming to a party at your house and going around to everyone trying to drum up business. It's excessively rude. Now, sending death threats is not exactly charming either, is it?

But let's just talk about the flaming. Should [the newsgroup users] have driven those people off of their boards? Yes. Should they have done it rudely? No.

Shea: The problem is that it's very hard to drive somebody off a newsgroup if they don't object to negative feedback. Is there anything you can do in that kind of situation?

Miss Manners: You mean the death threats aren't working either?

Shea: Even the death threats didn't work. These two lawyers have now published a book in which they say that only starry-eyed idealists believe there's a community in cyberspace and that individuals have no obligation to follow the customs of cyberspace. Basically, they deny that there is such a thing as etiquette on-line. Is there any polite response to that?

Miss Manners: The response is the same as it is in society: You can deny all you want that there is etiquette, and a lot of people do in everyday life. But if you behave in a way that offends the people you're trying to deal with, they will stop dealing with you. And that can happen as easily in cyberspace as it happens every day in real life.

There are plenty of people who say, "We don't care about etiquette, but we can't stand the way so-and-so behaves, and we don't want him around!" Etiquette doesn't have the great sanctions that the law has. But the main sanction we do have is in not dealing with these people and isolating them because their behavior is unbearable.

[In cyberspace], people can easily avail themselves of the cloak of total anonymity, which of course creates a lot of etiquette problems. Because if you're rude under a code name and I can't see you, I don't know where you live, and I don't even know your real name, [then] you probably don't feel the sense of shame you would feel if you were rude to the same group of people but were in a room with them.

Shea: Some people use the anonymity of cyberspace as an opportunity to try out new, alternative identities. One thing that's fairly common is gender switching, especially in flirting or sex-talk areas. Is this correct behavior under any circumstances? Under some circumstances?

Miss Manners: It's a "consenting adults" thing. If you have a forum where it's understood that everybody gets to play out a fantasy and be whom they like, why not?

What gets tragic is if you have people who are presuming that meeting people in cyberspace is the equivalent of meeting someone through a social circle where they are known and start putting trust in the people they meet.

Shea: Do you have a sense about the general state of on-line etiquette as compared to "real world" etiquette — better, worse or just different?

Miss Manners: I think you have the two extremes. I know a lot of people who very much enjoy various forms of participation [in cyberspace] and make extra efforts to see that it's enjoyable for everyone. And then there are the kind of people you've described to me today. In that sense, you've got all the ingredients you have in the real world.

Shea: Do you think there's one overriding "golden rule" of 'netiquette?

Miss Manners: Behave yourself! That's the only overriding rule of all of etiquette, which by its very nature is composed of specific rules for specific situations. What you're asking is whether there's an underlying moral concept. And there is — don't scare the horses on the streets.

I always presume, because it helps me get up in the morning, that most people are people of goodwill and would like to restrain themselves from offending people if they knew what was offensive.

Shea: I find that most people do want to get along with other people, and that in fact, many people are probably nicer on-line than they are in real life.

Miss Manners: Really! Nicer!

Shea: I think in some cases, yes, because there's no obligation to go on-line when you're feeling bad. I suspect some people are showing the best side of themselves when they're on-line, whereas maybe they can't be as effective at hiding their bad side in their everyday lives.

You know, it's fun to talk about the crazy people who make life miserable, but I really believe that most people want to be at least reasonably nice. I mean, the whole existence of newsgroups — people go way out of their way for others they don't even know, just because they have a common interest. It's a wonderful kind of sharing.

Miss Manners: The people I know who participate [in newsgroups] have been delighted because they feel there's real conversation there. But then you began to scare me with the number of outlaws that you mentioned.

You know, I have this hope that [the 'net] is going to revive the arts of conversation and letter-writing. Because suddenly people who used the phone only to communicate are writing out their thoughts and feelings. In real life, conversation has turned so much into whining and polemics, I would think that would get tedious very quickly in a cyberspace group, where it is your ability to be interesting that's valued. So maybe it will teach people again how to talk and write. Wouldn't that be wonderful? ■

Express yourself :-)

The fact that most network interactions are limited to written words can be the source of misunderstandings. Fortunately, clever network users have had years to deal with this and have created a shorthand to communicate the tone of their correspondence, a tone they would otherwise convey by voice, facial expression and/or gesture. These shorthand expressions are known as "smileys" or "emoticons." Smileys are easy to figure out once you get the hang of them (just remember that they always face sideways).

:-)	Smile; laugh; "I'm joking"
:-(	Frown; sadness; "bummer"
;-)	Wink; denotes a pun or sly joke
:-O	Yelling or screaming; completely shocked
:-()	Can't or won't stop talking
:-D	Big, delighted grin
:-P	Sticking out your tongue
:-]	Sarcastic smile
%-)	Confused but happy; drunk or under the influence of controlled substances
%-(	Confused and unhappy
:'-(	Crying
:'-)	Crying happy tears
:-\	Mixed feelings but mostly happy
:-/	Mixed feelings but mostly sad
*	Kiss
{}	Hug
{{{***}}}	Hugs and kisses

— From the book Netiquette *by Virginia Shea (Albion Books, 1994; info@albion.com or (415) 752-7060).*

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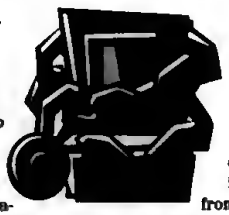
Crash course in 'net security

Few companies have dedicated staff to Internet security, but continued growth and savvier hackers will increase the need for this expertise



By Alan Radding

Crime may indeed pay if you're thinking about a career in Internet security. But for now, responsibility for security is falling through the cracks.

Every now and then, however, a stunning breach propels Internet security into the limelight. The most recent breach occurred Christmas day when a hacker scaled significant security hurdles to break in to a computer at the San Diego Supercomputer Center. The attacker slipped past a firewall by disguising his identity through a form of spoofing called sequence number attack. He made himself appear to the firewall as a trusted machine.

Until this breach, firewalls, which are merely a set of filters, were considered to be virtually fail-safe protection. But since 1985, Internet security experts have known of the particular weakness exploited by the attacker. Since the Christmas raid, the reassurance firewalls once provided has been shattered.

From a security standpoint, the Internet fails short in two of the following three critical security dimensions: confidentiality, integrity and availability. Availability is easy. "The Internet gives you so many paths to where you want to go that availability is never a problem," says John O'Leary, director of education at the Computer Security Institute in San Francisco. However, ensuring confidentiality and integrity present seemingly insurmountable obstacles.

Still, those responsible for security aren't helpless. If you want to take on the challenge, you'll need to hone skills in firewalls and cryptographic technology, which includes encryption.

Firewalls, usually as part of a router, screen incoming and outgoing messages. They inspect the messages down to the packet level and can be set to pass or reject messages on the basis of user identification, point of origin, file and other code or actions. Even though firewalls have proved vulnerable, information systems staff must "become knowledgeable with the hardware and software of firewalls," says Kurt Stammberger, a spokesman for RSA Data Security, Inc., a data encryption vendor in Redwood City, Calif.

"For inbound traffic, we advise our clients to use two firewalls, and then we think all traffic should go to a mailbox," says Daniel E. White, a partner at Ernst & Young in Chicago. Firewalls can also help control outgoing traffic by preventing sensitive types of files from passing out of the router and onto the Internet. But firewalls are only a perimeter defense. If they are breached, users still need good security on their internal hosts.

Encryption is a must for any organization that wants to conduct business or perform transactions over the Internet.

But before an organization even gets to the point of firewalls and encryption, it must master the basics of good IS security as well as educate users about the threats lurking on the Internet. "This is pretty basic stuff, but you need to keep reminding people," White says.

Few organizations have someone solely dedicated to Internet security. But a few more high profile attacks such as the Christmas raid, combined with the astounding growth of the Internet, may turn someone with Internet security skills into a hot commodity. ■

Radding is a freelance writer in Newton, Mass.

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Despite continued consolidation at automakers, the IS hiring outlook is hopeful

GETTING INTO GEAR

Aggressive technical goals planned for the next decade have strengthened the automotive industry's job outlook. For the first time in a long while, companies are poised for hiring.

"The industry is going to get stronger, especially in the product design area," says George Peterson, president of automotive consultancy AutoPacific, Inc. in Santa Ana, Calif. "Those with both mechanical engineering and computer systems skills will be able to write their own ticket with the Big 3 in Detroit."

Driving the demand are the recent achievements of top manufacturers. After a dry spell, for example, General Motors Corp. has reportedly steered its car and truck business from a $10.7 billion loss in 1991 to a $362 million profit by last fall. Indeed, others are doing the same.

"The Big 3 and all the little engineering companies are hiring more now than they were one year ago," says Dan Bortfeld, staffing manager at Electronic Data Systems Corp., a GM subsidiary.

All need apply

Competition for technical jobs is fierce, however, whether you seek work at a manufacturer, dealer or supplier. Luckily, both specialized and broad backgrounds are in demand.

"There is more demand for CAD/CAM, client/server architecture and desktop applications such as Microsoft Corp.'s Office or Lotus Development Corp.'s Notes," says Bortfeld, who recruits for EDS accounts that support GM worldwide. "But even the legacy or business application support systems are busy and competitive now."

And things are only going to get more interesting, industry watchers say. In the next few years, systems integration will be the name of the game. To that end, managers will be hiring staff to construct the backbone that will buttress the intelligent vehicle highway systems planned for the future. The integration of speech recognition and geographical information systems using smart chips, for example, will provide motorists with car navigation systems.

> **"For the past two years, we've been in an upward economic cycle. We're looking for C programmers, object-oriented database programmers and experts in TCP/IP and Unix workstations."**
>
> **Mike Morton, Chrysler Corp., Auburn Hills, Mich.**

Intense competition has also increased the need for ever-improving safety systems and maximum efficiency in design production as well as the demand for networking skills, according to Mike Morton, manager of technical data management for computer-aided design (CAD) graphics at Chrysler Corp. in Auburn Hills, Mich.

Interest in networking peaked when the Automotive Industry Action Group announced last fall that it would adopt TCP/IP. The decision was expected to increase commercial use of the Internet and help companies that provide TCP/IP-based services.

At about the same time, the American Automobile Association announced it would link the majority of its member clubs via a frame-relay network by the end of last year through a $100 million contract with AT&T Corp.

Dealers join in

Eventually, even dealerships are planning to jump on the information superhighway to communicate directly with customers over the Internet, says Ken Barile, MIS manager at BMW of North America, Inc. in Woodcliff Lake, N.J. Meanwhile, Barile says there has been an increased use of electronic data interchange among manufacturers, dealers and suppliers in the past year.

Though slight peaks and valleys in the economy and, subsequently, hiring may occur, analysts are positive. The auto industry will likely remain a solid employment option throughout the decade for multitalented IS professionals. ■

Gerber is a freelance writer in San Francisco.

THE REAL WORLD

In the heyday of consolidation and plant closings, auto manufacturers listened a hard lesson on the hiring front – the importance of adjusting the hiring rate according to business levels.

While contract hiring has always been popular in the automotive industry, the practice has become more common in the past two years.

"There tends to be more contract than direct hiring now at Chrysler," says Mike Morton, manager of technical data management for CAD graphics at Chrysler.

"In the cyclical trend of the automotive industry, anything above the standard number of staffers during the bottom of the cycle are contracted, so you don't have to hire and fire people every three to four years," he says.

Although Chrysler has been in an upward economic cycle during the past two years, it is downsizing and trying to shift the load onto just the complete cycle. "We're not hiring for internal Chrysler positions right now," Morton says.

Contractors are hired for specific projects and periods of time, he adds. If Chrysler does increase full-time staff, it's for a specialized technical area.

"We're looking for C programmers, object-oriented database programmers and experts in TCP/IP and Unix workstations," Morton says.

As for compensation, salaries have stayed pretty much the same in the past year or two, with the exception of entry-level salaries.

And while some workers have been coming into Chrysler at a higher rate structure, Morton says he hasn't seen the top of the rate structure move up.

—Cheryl Gerber

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- LAN/WAN hardware and software components and cabling.
- Training LAN administrators.
- Systems analysis and programming experience in microbased software packages such as XBase, SQL languages, Oracle.
- Experience in MS/DOS, MS/Windows 3.1, MS office suite, Lotus CC-Mail.

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- Experience in MS/DOS, MS/Windows 3.11, MS office suite and Lotus cc-Mail.
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MVS/ESA Sysprog.
Support person for day to day problems and basic trouble shooting. Must have knowledge of ISPF, JCL, IPCS knowledge and good understanding of MVS/ESA a plus.

Performance Specialist
Develop daily, weekly and monthly capacity and performance reports, and performance recommendations for MVS/ESA, IMS, DB2 and CICS. Requires knowledge of MVS/ESA, DB2, IMS, CICS, MICS and SAS.

DB2, IMS, IDMS System Programmer
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Successful candidate will have 2+ years of industry experience with the following: Assembly and C/C++ programming, device drivers, embedded systems, utility applications developer, networking software, development and testing of Windows NT systems and use of Windows NT debugger to identify and solve system problems. Must also understand the interaction of Windows NT with different device and service levels to define and deliver an optimized solution. Dept. TJVP-CW-0306-SSD

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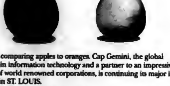

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As part of the experience, applicant must have implemented these algorithms in MCAE software, personally contributing an average of at least 5,000 lines of source code per year to a larger system of at least 1 million lines of code written in the C, FORTRAN or C++ programming languages. Alternatively, employer will accept in place of the bachelor's degree and three (3) years experience, a master's degree in aeronautical, aerospace, mechanical, industrial, electrical, civil or chemical engineering or in computer science, provided that the candidate has the following: a) two (2) years experience personally contributing at least 10,000 lines of source code to a larger system of at least 1 million lines of code written in the C, FORTRAN or C++ programming languages, and b) six (6) quarter hours of graduate level research and implementation of MCAE software written in the C, FORTRAN or C++ programming languages resulting in a thesis. 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Special Requirements
ABI-DRP Package (Greensboro, Winston-Salem)
AS/400 RPG/400, PRISM (Ft. Lauderdale, Greensboro, Jacksonville, Richmond, Winston-Salem)
Banking, DB2 (San Juan)
Business Analysts with Client Server Background, Mainframe Programmers and HOGAN (Atlanta, Charlotte, Dallas)
C++, OOPS, VMS (Ft. Lauderdale, Winston-Salem)
C, UNIX, AIX Systems Administrators (Atlanta, Dallas, Jacksonville)
HP-3000, COBOL, Powerhouse (Raleigh)
Imaging, Informix, Plexus (Richmond)
LAN/WAN Network Engineer, Novell, Unix, Routers, Host Connectivity (Va. Beach)
M & D, Millennium, Informix 4GL, Walker (Atlanta)
Natural, DB2 (Winston-Salem)
PICK AS/400 COBOL (Virginia Beach)
SGML/HTML Developers (Virginia Beach)
SHERPA (Dallas)
Sun UNIX (OS/2 and Solaris) LAN Administrators (Dallas, Ft. Lauderdale)
Windows NT/AS Systems Engineers (Dallas)

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County of Lake
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Interface with developers and business units to analyze business requirements, identify technologies, and support application development or enhancement throughout the project's lifecycle. Additionally, you will provide business process reengineering, environmental solutions (LAN, WAN, connectivity, DBA, operations), and systems integration services.

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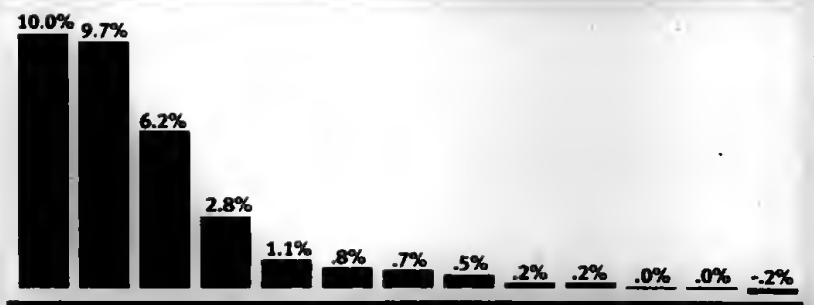

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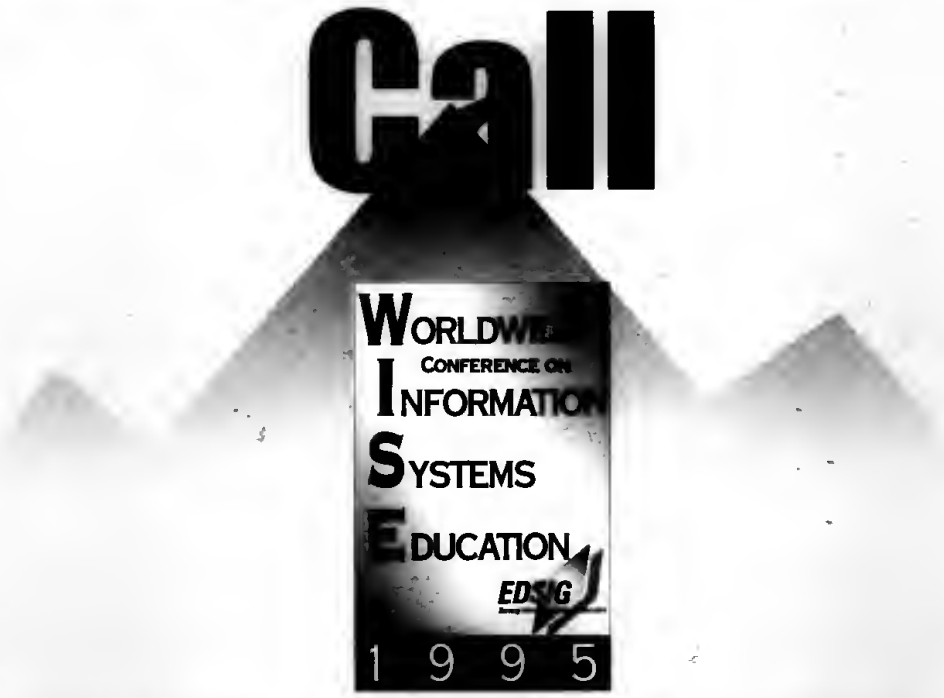

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WISE

KEEPING SECRETS

E-mail privacy products are still scarce, although the market continues to evolve

By Derek Slater

Electronic mail can be a great platform for corporate communication, but is E-mail a safe way to discuss impending mergers, layoffs or other sensitive matters?

"It depends on what's being transmitted," says Joyce Graff, E-mail analyst at Gartner Group, Inc. in Stamford, Conn. "If someone sends you a message that says, 'I'm depositing $1.5 million in your bank,' you may want the content encrypted, or you may need a way to authenticate the sender's identity," Graff says.

Companies that need to ensure messages are read only by the right eyes will want to look into E-mail privacy products. Unfortunately, analysts say pickings are still slim in this evolving market.

Encryption options

Standard E-mail packages such as Lotus Development Corp.'s CC:Mail and Microsoft Corp.'s Mail offer built-in encryption. And they work fine if the sender and receiver use the same package; otherwise, encryption is lost and an add-on product is required.

Most popular encryption products are built around "public key/private key" technology. In a nutshell, a user can disseminate a public key that allows anyone to encrypt E-mail for that user. The messages can be decrypted only with the user's private key.

A key player in encryption is RSA Data Security, Inc. in Redwood Shores, Calif. RSA Data Security offers several products — some free for noncommercial use — and holds copyrights on important public/private key technology. Other vendors with high-end security solutions include Northern Telecom, Inc. with its Entrust product and National Semiconductor Corp.'s IPower.

Pretty Good Privacy (PGP) has become an increasingly common option. PGP is a technology that is implemented by several vendors, including ViaCrypt in Phoenix. The Internet Engineering Task Force's Privacy Enhanced Mail standard is another emerging technology.

"Generally, you must ask the vendors what they have to offer [with regard to each security mechanism], and they'll either have a story to tell or they won't," Graff says.

Of course, both the sender and the receiver of the message must have the same security mechanisms for the encryption and decryption to work. Currently, there is no universal encryption product for ad hoc communications.

Analysts say there are other factors contributing to the slow emergence of E-mail privacy products. The first is uncertain user demand as corporations struggle to balance the need against the cost.

"Customers are still trying to figure out how much they care. It's like putting air bags in a car — if it costs $100, sure. For $1,000, maybe. For $5,000, no thank you," Graff says.

The second concern might be called the hassle factor. "What you're looking for is an encryption product with two buttons on the screen. One says encrypt; the other says decrypt. You click, and the product does everything else for you. I haven't seen that product yet," says Eric Arnum, editor of the newsletter "Electronic Mail and Messaging Systems" in Washington.

> "What you're looking for is an encryption product with two buttons on the screen. One says encrypt; the other says decrypt. You click, and the product does everything else for you. I haven't seen that product yet."
>
> Eric Arnum, editor, "Electronic Mail and Messaging Systems"

Generating keys, attaching them to messages and tracking public and private keys is complex. Arnum notes that E-mail management is labor-intensive, and encryption adds to that problem. For example, if a user's key is lost or corrupted, encrypted messages and files will remain locked. "The question for IS is: Do you want rather tricky products being used by people who don't know the inside-outs of their computer systems?" Arnum asks.

For that reason, many firms will choose not to implement encryption in a general way, analysts say.

Eventually, public keys may be maintained in a central repository such as an X.500 directory, Graff says. But such a solution is still down the road. ■

Slater is a freelance writer in Ashland, Mass.

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Internet commerce inches forward

The mere thought of sending a credit-card number, whether corporate or private, over the low-security Internet gives most people the chills.

Joyce Graff, E-mail analyst at Gartner Group, compares sending sensitive information over the Internet to "putting the gold shipment on a stagecoach and sending it through outlaw territory."

But where there's a will, there's a way. Several companies are now hoping to make commercial transactions on the Internet secure and viable.

Net Market Co., a small firm in Nashua, N.H., has created an on-line shopping mall. Encryption software safely allows the buyer to E-mail a credit-card number to the seller, the company said. But this approach is oriented more toward consumers than large businesses.

Cheyenne, Wyo.-based First Virtual Holdings, Inc.'s approach doesn't send sensitive numbers over the line.

Firms or individuals can open buyers' or sellers' accounts with First Virtual Holdings for a minimal fee. Credit-card information for the account is stored on secure systems at transaction-processing giant Electronic Data Systems Corp. Using this method, buyers can send the account number and desired purchase to the seller. EDS then messages the buyer for verification before charging the account and crediting the seller.

Only time will tell whether either method makes the Internet a more secure and popular place to conduct business. — *Derek Slater*

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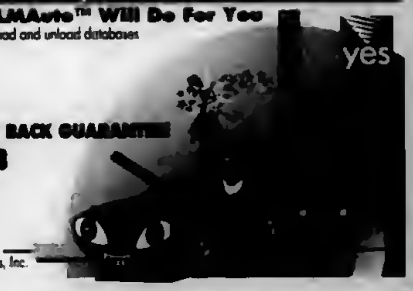

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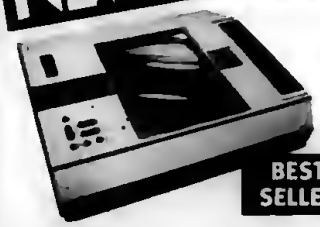

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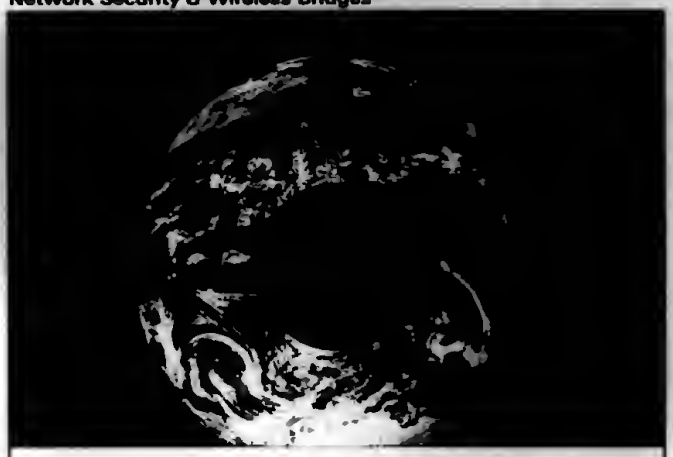

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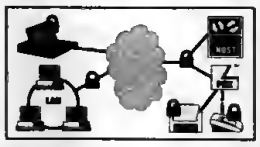

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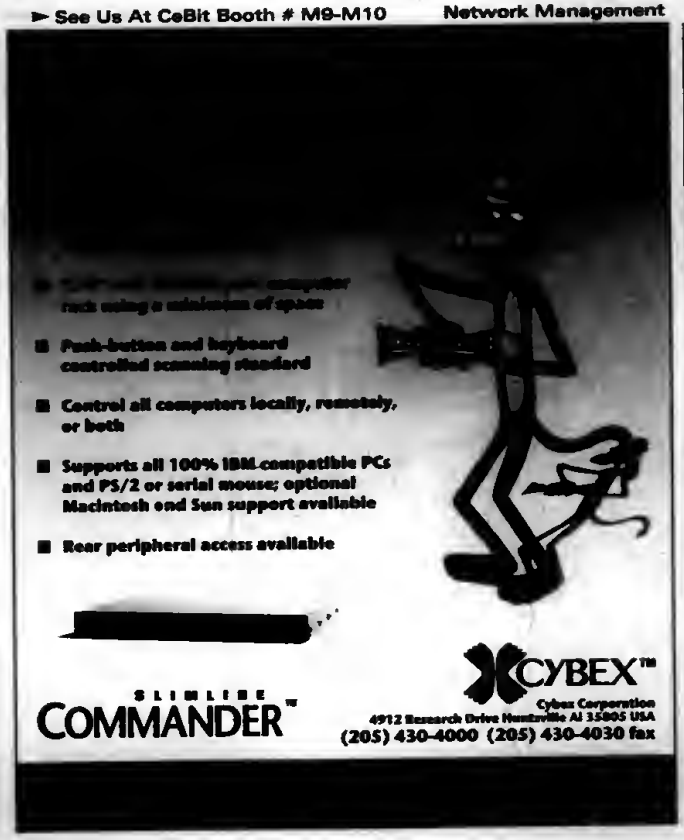

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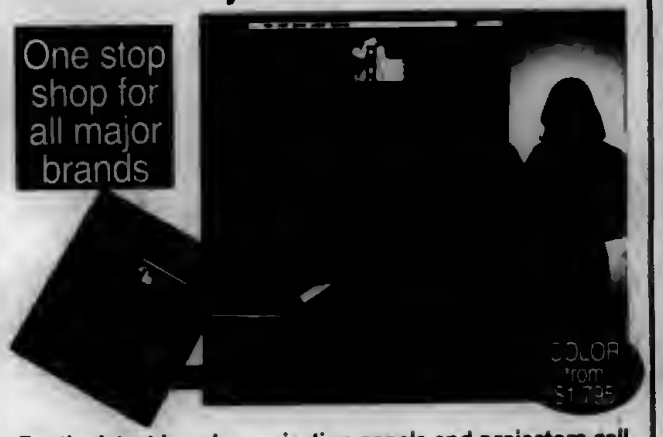

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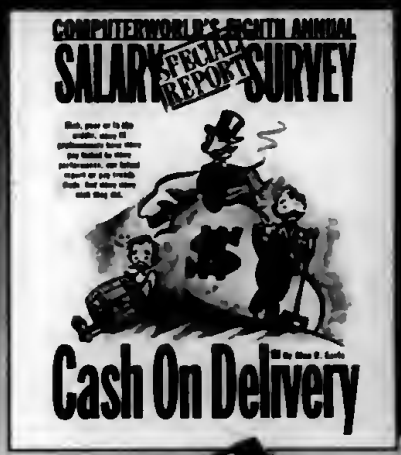

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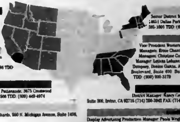

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March 3 Stock Ticker

Gainers / Losers

Percent

Gainers		Losers	
American Software Inc.	38.0	Standard Microsystems Corp.	-21.0
Racotek Inc.	27.5	Parallan Computer	-20.0
State of the Art	20.9	Merisel (L)	-17.3
Weitek	20.0	Penril Data Comm Networks	-17.2
Wall Data Inc.	17.8	Borland Int'l. Inc.	-14.3
Iomega Corp. (H)	17.5	Xylogics Inc.	-14.0
Micron Technology (H)	15.3	RasterOps	-12.2
Lattice Semiconductor (H)	13.5	Micropolis Corp.	-11.8

Dollar

Gainers		Losers	
Micron Technology (H)	8.88	Standard Microsystems Corp.	-4.00
Texas Instruments	8.50	ITT Corp.	-3.88
Wall Data Inc.	7.88	Xylogics Inc.	-3.25
Xilinx (H)	7.00	BellSouth Corp.	-2.50
US Robotics	6.38	NetManage Inc.	-2.50
Xerox Corp.	5.13	Compuware Corp.	-2.38
3COM Corp (H)	3.63	General DataComm Inds.	-2.38
IBM	3.25	Bell Atlantic Corp.	-2.13

[redacted]

PCs aid stock picking

With Wall Street topping the 4,000 mark recently, people might consider putting the money hidden away in their mattress to good use. Though not a replacement for a broker, the bounty of affordable PCs and investment software on the market can help users get a start right at home.

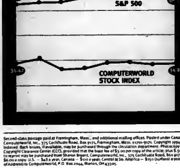
According to Paul Garverick, a financial analyst at the American Association of Individual Investors (AAII) in Chicago, 80% of the group's 180,000 members use PCs, and 57% of those with PCs use them for investment analysis.

Intuit, Inc.'s popular and pervasive Quicken is a good starting point for many users. While it provides only basic features, Quicken can be enhanced with packages such as Ernst & Young's Prosper, which lets users develop a personal investment strategy and integrate it with Quicken's portfolio management system.

Wall Street Analyst from Omega Research, Inc. in Miami provides users with classic market studies and detailed explanations in addition to portfolio management features.

"It's like having an expert sitting there telling you what he thinks about the chart," said Bruce Babcock, a commodities trader in Sacramento, Calif. Roger Fredrickson, an investor in Pell City, Ala., downloads about 7,800 stocks and reviews charts produced by Wall Street Analyst to make investment decisions.

Garverick said a popular offering among AAII members is CapTool, a DOS-based package from TechServe, Inc. in Issaquah, Wash. For those who do not want to invest in investment software, shareware titles such as Capital Gainz are widely available at file transfer protocol sites on the Internet. *—Tim Ouellette (timo@cw.com)*



Exch	52-Week Range			Mar. 3 Close	Wk Net Change	Wk Pct Change
			[illegible]			
OTC	53.88	20.13	3COM Corp (H)	53.88	3.63	7.2
NYS	44.38	36.25	Ameritech Corp	42.13	-0.50	-1.2
NYS	57.13	47.75	AT&T	50.88	-0.38	-0.7
OTC	39.25	12.75	Bantam Systems Inc.	27.00	0.00	0.0
OTC	43.88	18.63	Bay Networks Inc.	32.50	0.38	1.2
NYS	58.38	48.38	Bell Atlantic Corp	51.00	2.13	-3.9
NYS	63.50	50.50	BellSouth Corp	57.00	-2.50	-4.2
NYS	21.50	10.88	Bolt, Beranek & Newman	17.75	1.63	10.1
OTC	16.50	9.00	Boca Research Technology (H)	15.50	1.06	6.9
NYS	12.88	33.00	Cabletron Systems	41.63	2.75	7.1
OTC	42.75	10.00	Centigram Communications	13.00	0.00	0.0
OTC	50.50	21.00	Chipcom Corp	44.00	-0.50	-1.1
OTC	40.75	10.75	Cisco Systems Inc.	34.38	1.00	3.0
OTC	13.75	6.13	Compression Labs Inc.	8.38	0.63	8.1
OTC	11.25	5.13	Computer Network Tech.	7.81	-0.08	-0.8
OTC	23.75	7.50	CrossComm	12.50	-0.88	-6.1
OTC	6.15	2.00	Data Switch Corp	3.50	-0.19	-5.0
OTC	30.00	17.88	DSC Communications	36.19	0.94	2.7
OTC	39.25	10.00	FORE Systems Inc.	30.75	-0.25	-0.7
NYS	33.88	10.00	General DataComm Inds.	20.75	-2.38	-10.3
NYS	34.38	29.50	GTE Corp	32.88	-0.75	-2.5
NYS	99.71	77.00	ITT Corp.	95.25	-3.88	-3.9
OTC	26.00	17.25	MCI Communications Corp.	19.69	-0.06	-0.3
OTC	15.75	7.00	MICOM Communications Corp. (L)	7.38	-0.63	-7.8
OTC	12.63	6.38	Microcom Inc.	10.75	-0.38	-3.4
OTC	10.50	4.00	Netrix Corp	8.25	-0.38	-4.3
OTC	7.50	3.25	Network Computing Devices	5.75	-0.38	-6.7
NYS	27.25	7.38	Network Equipment Tech.	25.88	-0.65	-2.4
OTC	28.50	13.88	Network General	27.13	-0.13	-0.5
OTC	9.38	5.06	Network Systems Corp.	5.44	0.06	-1.1
NYS	63.38	26.50	Newbridge Networks Corp.	33.75	0.00	0.0
NYS	37.25	26.00	Northern Telecom Ltd.	36.13	-0.23	-0.7
OTC	25.50	13.38	Novell Inc.	19.88	-0.25	-1.2
NYS	40.75	33.25	Nynex Corp	38.88	0.38	-1.0
OTC	28.50	15.50	Octel Communications Corp.	22.75	0.25	1.1
OTC	27.50	12.00	Optical Data Systems Inc.	27.13	-0.88	3.2
OTC	7.50	2.13	Penril DataComm Networks	3.00	-0.63	-17.2
OTC	28.25	10.00	PictureTel Corp. (H)	28.25	1.50	5.6
OTC	8.13	2.15	Proteon Inc.	6.38	-0.25	-1.8
OTC	12.38	2.75	Racotek Inc.	6.38	1.38	27.3
OTC	10.50	3.50	Retix	4.88	0.38	8.5
NYS	13.75	12.66	Scientific Atlanta Inc. (H)	22.38	-0.63	-2.7
NYS	64.58	38.50	Southwestern Bell Corp.	40.88	-0.25	-0.6
NYS	40.13	29.88	Sprint Corp	28.38	-1.13	-3.8
OTC	31.61	13.38	Standard Microsystems Corp.	19.75	-0.88	-11.0
OTC	43.75	6.50	Stratacom Inc.	37.08	-0.19	-0.5
OTC	15.75	3.88	Telebit Corp	5.75	0.44	8.2
OTC	39.25	54.00	US Robotics	50.25	6.38	12.1
NYS	43.75	34.63	US West Inc.	38.00	-0.13	-0.3
OTC	20.73	12.75	Xircom	16.75	-0.75	-1.5
OTC	28.00	8.00	Xylogics Inc.	20.00	-3.35	-14.0
			[illegible]			
OTC	7.50	3.50	Advanced Logic Research	4.38	0.00	0.0
OTC	48.00	24.63	Apple Computer Inc.	40.31	1.47	3.8
OTC	24.75	10.38	AST Research Inc.	15.38	1.21	8.8
NYS	44.58	75.50	Compaq Computer Corp	34.50	-0.25	-0.7
OTC	47.25	21.25	Dell Computer Corp	41.38	1.94	-4.5
OTC	25.25	8.25	Gateway 2000 Inc.	18.75	1.00	-5.3
NYS	117.50	71.88	Hewlett Packard Co	116.38	0.75	0.6
NYS	35.88	18.75	Silicon Graphics (H)	35.75	1.00	2.9
OTC	37.63	16.25	Sun Microsystems Inc.	31.38	-0.38	-1.2
NYS	52.38	30.75	Tandy Corp	46.75	1.13	-2.5
OTC	12.88	2.38	Zeos International Ltd	12.00	0.63	5.3
			[illegible]			
ASE	12.00	5.25	Amdahl Corp	10.63	0.50	4.5
NYS	8.88	4.58	Convex Computer	6.13	0.00	0.0
OTC	2.75	0.50	Cray Computer	1.06	-0.13	-10.5
NYS	33.75	14.63	Cray Research Inc.	17.25	1.00	6.2
NYS	12.00	6.63	Data General Corp	7.88	0.13	-1.6
NYS	38.75	18.25	Digital Equipment Corp	33.00	-0.75	-5.2
OTC	6.38	1.72	Encore Computer Corp	2.33	-0.28	-10.0
OTC	16.25	6.50	Harris Computer Systems Corp (H)	16.75	0.00	0.0
NYS	78.93	51.38	IBM	78.13	3.25	4.3
OTC	17.25	5.00	NetFrame	6.63	0.13	1.9
OTC	13.75	3.63	Parallan Computer	5.50	-1.38	-20.0
OTC	16.00	5.38	Pyramid Technology	15.88	0.00	0.0
OTC	21.23	11.13	Sequent Computer Sys.	17.50	-0.13	-0.7
OTC	6.56	3.13	Sequoia Systems Inc.	6.13	0.12	3.3
NYS	39.88	22.88	Stratus Computer Inc.	26.25	-0.75	-2.8
NYS	19.75	10.50	Tandem Computers Inc.	16.38	-1.15	-6.4
OTC	10.25	3.88	TriCord Systems	5.38	-0.75	-4.4
NYS	16.50	8.23	Unisys Corp	9.13	0.00	0.0
			Software			
OTC	38.50	21.50	Adobe Systems Inc.	35.38	1.13	3.3
OTC	6.38	2.50	American Software Inc.	3.88	0.94	31.9
OTC	43.50	23.25	Autodesk Inc.	38.38	0.69	1.8
OTC	3.38	1.25	Bachman Info. Systems	4.21	-0.25	-5.6
OTC	29.00	20.50	BGS Systems Inc.	26.63	-0.19	-0.7
OTC	71.00	40.25	BMC Software Inc.	64.00	-1.75	-2.7
OTC	30.50	15.31	Boole & Babbage	30.00	0.69	2.3
OTC	15.13	0.00	Borland Int'l. Inc.	7.50	1.25	-14.3
OTC	22.25	6.00	Brock Control Systems Inc.	6.25	-0.50	-7.4
OTC	4.00	1.78	CE Software	3.31	0.00	1.9
ASE	50.25	8.00	Cheyenne Software Inc.	16.88	1.00	6.3
OTC	21.88	9.25	Cognos Inc. (H)	20.75	-0.38	-1.8
NYS	40.50	57.38	Computer Associates (H)	40.50	2.63	6.5
NYS	6.13	2.50	Computervision Corp	5.63	0.25	4.7
OTC	49.25	31.25	Compuware Corp	35.25	-2.38	-6.3
OTC	17.25	8.00	Comshare Inc.	10.61	0.00	0.0
OTC	16.75	10.13	Corel Corp.	13.38	0.63	4.9
OTC	14.25	7.25	Dataware Technologies Inc.	11.75	0.00	0.0
OTC	6.75	5.25	Easel Corp	3.88	-0.13	-4.2
OTC	23.75	14.75	FileNet Corp	11.00	0.00	0.0
OTC	13.88	3.00	4th Dimension	5.25	0.38	7.7
OTC	19.25	8.00	Frame Technology	16.25	-0.13	-0.8
OTC	35.25	11.50	FTP Software Inc.	30.50	1.38	5.1
OTC	10.50	7.00	Group 1 Software	9.50	0.00	0.0
OTC	30.75	6.75	Gupta	10.50	0.63	6.3
OTC	10.75	4.63	Hogan Systems Inc.	8.25	-0.13	-2.0
OTC	45.00	18.00	IMRS	43.75	1.13	2.6
OTC	23.50	11.25	Information Resources	13.75	0.12	0.8
OTC	39.38	54.25	Informix Corp. (H)	30.38	1.75	4.7
OTC	13.75	7.38	Intergraph Corp	13.73	1.44	11.7
OTC	8.75	2.50	Interleaf Inc.	4.88	0.13	2.6
OTC	18.25	8.63	Intersolv Inc.	14.38	-0.63	-4.2
OTC	73.25	27.00	Intuit Inc.	66.13	1.13	1.7
OTC	37.25	30.00	Legent Corp.	29.50	0.25	0.9

Exch	52-Week Range			Mar. 3 Close	Wk Net Change	Wk Pct Change
OTC	86.50	29.75	Lotus Development	41.00	-1.50	3.5
OTC	16.75	4.38	Magic Software Enterprises	5.25	-0.13	2.3
OTC	14.75	6.00	Manugistics Group Inc.	11.00	1.00	6.9
OTC	27.75	14.75	MapInfo Corp. (H)	07.25	2.00	7.9
OTC	6.38	1.44	MathSoft	3.25	0.00	0.0
OTC	22.75	6.50	McAfee Associates (H)	21.50	0.50	2.4
OTC	17.25	9.38	Mentor Graphics	12.88	-0.63	-4.6
OTC	20.00	11.50	Micro Focus	12.13	0.13	1.0
OTC	9.25	4.63	Micrografx Inc.	5.63	0.38	8.0
OTC	65.25	50.88	Microsoft Corp.	63.31	2.00	3.4
OTC	45.00	11.25	NetManage Inc.	35.00	2.50	6.7
OTC	32.13	17.50	Oracle Corp	31.88	1.13	3.7
OTC	40.25	21.50	Parametric Technology	38.00	0.75	2.0
OTC	24.50	13.38	ParcPlace Systems Inc.	17.50	-0.50	-2.8
OTC	38.50	13.00	PeopleSoft	38.00	2.88	8.2
OTC	8.50	4.38	Phoenix Technologies	7.38	0.13	3.7
OTC	14.75	3.50	Platinum Software	8.00	-0.06	-0.8
OTC	75.75	11.00	Platinum Technology	22.38	-1.38	-1.6
OTC	56.75	27.00	Progress Software Corp	53.25	1.00	1.8
OTC	4.38	1.88	Quarterdeck Office Sys.	3.94	-0.01	-0.8
OTC	20.00	9.50	Rainbow Technologies Inc.	18.13	1.63	9.9
OTC	7.75	2.88	RasterOps	4.50	-0.63	-12.2
OTC	7.13	2.88	Ross Systems	4.63	-0.38	-7.5
OTC	11.25	0.50	Sapiens Intl. Corp. N.V.	2.81	0.06	2.3
OTC	28.63	9.73	Softkey International Inc.	20.50	2.38	0.0
OTC	7.63	3.88	Software Publishing Corp	3.88	-0.13	3.1
OTC	10.11	5.00	State of the Art	10.13	1.75	20.9
NYS	38.50	25.00	Sterling Software Inc.	36.75	0.75	2.1
OTC	16.50	3.63	Struct. Dynamics Research	6.00	0.00	0.0
OTC	57.00	35.25	Sybase Inc.	42.75	1.00	2.4
OTC	21.50	8.88	Symantec Corp.	19.63	0.00	0.0
OTC	50.75	33.00	SynOptics	60.75	2.75	5.7
OTC	24.63	10.63	System Software Assoc. (H)	24.13	0.88	3.8
OTC	7.38	3.25	Trinzic Corp. (H)	7.38	0.88	13.5
OTC	30.00	7.88	ViewLogic Systems	9.50	-0.88	-8.4
OTC	23.25	12.23	VMark Software Inc.	15.75	-0.13	-0.8
OTC	13.25	9.50	Walker Interactive Systems	7.38	0.00	0.0
OTC	60.00	59.25	Wall Data Inc.	52.19	7.88	17.6
			[illegible]			
NYS	32.25	21.25	Advanced Micro Devices	30.13	1.00	3.4
NYS	55.88	16.38	Analog Devices Inc.	25.63	1.00	4.1
OTC	37.63	19.75	Atmel Corp	31.06	2.94	9.1
OTC	8.88	3.61	Chips and Technologies	8.00	0.38	5.8
OTC	41.25	51.00	Cirrus Logic	35.25	2.63	8.0
NYS	59.25	15.88	Cypress Semiconductor Corp. (H)	78.88	1.00	6.9
NYS	20.13	13.38	Dallas Semiconductor	16.13	-0.38	-2.2
OTC	31.50	14.75	Integrated Silicon Systems	28.25	-0.38	-1.3
OTC	80.75	56.00	Intel Corp	80.38	2.75	3.5
NYS	56.25	16.75	LSI Logic Corp. (H)	54.75	1.25	2.3
OTC	24.88	14.75	Lattice Semiconductor (H)	26.25	3.13	13.5
NYS	66.75	28.75	Micron Technology (H)	66.75	8.88	15.3
NYS	64.75	42.13	Motorola Inc.	58.25	5.38	6.3
NYS	25.00	14.38	National Semiconductor	17.63	0.50	2.9
OTC	55.38	6.75	Sierra Semiconductor	24.63	2.25	10.1
NYS	99.50	63.25	Texas Instruments	85.88	8.50	11.0
OTC	16.38	10.25	VLSI Technology	15.38	0.13	0.8
OTC	8.75	1.78	Weitek	3.75	0.63	20.0
ASE	20.38	11.00	Western Digital Corp.	14.50	0.75	5.9
OTC	68.63	29.00	Xilinx (H)	68.63	7.00	11.4
OTC	37.75	24.25	Zilog Inc.	33.75	1.38	6.2
			[illegible]			
OTC	30.50	14.50	American Power Conversion	16.06	0.19	1.6
OTC	27.25	15.75	BancTec Inc.	17.75	1.25	7.0
OTC	5.75	3.25	Cambex Corp.	3.88	0.13	3.7
ASE	5.00	1.38	Cognitronics Corp	2.63	-0.08	-2.3
NYS	39.50	9.00	Conner Peripherals	9.75	0.13	1.3
OTC	24.00	9.75	Creative Technologies Inc.	17.63	1.38	10.2
OTC	8.25	3.50	Data Race Inc.	6.63	0.00	0.0
ASE	7.63	4.13	Dataram Corp	5.13	-0.25	-4.7
NYS	26.00	12.50	EMC Corp.	17.00	0.75	4.4
OTC	16.25	3.15	Emulex Corp. (H)	16.25	0.94	6.1
OTC	17.50	11.25	Evans & Sutherland	14.13	1.63	13.0
OTC	24.00	14.00	Exabyte	18.75	0.00	0.0
OTC	23.13	3.88	Intelligent Info. Systems	3.00	-0.38	-11.1
OTC	2.13	1.39	Iomega Corp. (H)	2.13	1.06	17.5
OTC	8.25	2.00	IPL Systems Inc.	4.50	0.00	0.0
OTC	29.50	17.00	Komag Inc.	25.19	2.19	9.5
OTC	8.63	2.63	Maxtor Corp.	4.00	-0.25	-5.9
OTC	11.50	5.11	Micropolis Corp.	5.63	-0.75	-11.8
OTC	20.25	9.25	Pinnacle Micro Inc.	12.88	0.13	1.0
OTC	28.75	5.16	Printronix Inc.	19.25	1.25	6.9
NYS	16.75	8.88	QMS Inc.	7.50	0.00	0.0
OTC	19.25	11.63	Quantum Corp.	14.50	-0.13	-0.9
OTC	18.25	7.38	Radius Inc.	9.75	0.00	0.0
NYS	14.13	8.38	Recognition International	8.25	-0.38	9.3
OTC	7.00	4.13	Rexon Inc.	5.38	0.13	5.5
OTC	28.75	15.63	Seagate Technology	24.50	0.13	0.5
NYS	41.50	20.88	Storage Technology (L)	20.88	-0.63	-2.9
NYS	40.50	26.00	Tektronix Inc.	33.00	-1.00	-2.9
NYS	113.13	90.63	Xerox Corp	113.13	5.13	4.7
			Services			
OTC	20.88	12.81	American Mgmt. Systems (H)	20.38	1.50	7.9
NYS	4.25	1.25	Anacomp Inc.	2.13	0.00	0.0
OTC	51.25	34.50	Analysts Int'l.	20.25	0.00	0.0
NYS	67.88	47.63	Auto Data Processing	61.25	-1.00	-1.6
OTC	30.00	14.00	Cambridge Tech. Partners	29.50	2.63	9.8
NYS	31.88	20.50	Ceridian Corp. (H)	30.88	-0.25	-0.8
NYS	26.13	17.25	Comdisco Inc.	25.13	-0.38	-1.5
OTC	18.00	8.25	Computer Horizons	15.13	-1.00	6.2
NYS	52.63	35.12	Computer Sciences	49.75	1.38	2.8
NYS	10.50	7.50	Computer Task Group	9.63	-0.38	3.8
NYS	22.25	6.75	CompUSA Inc.	19.63	0.75	4.0
OTC	11.38	5.38	Control Data Systems Inc.	8.88	0.06	0.0
OTC	32.12	6.13	Egghead Discount Software	10.00	-0.75	-7.0
NYS	40.13	32.00	General Motors E (EDS)	39.00	0.88	2.3
OTC	19.75	8.88	Inacom Corp	8.69	-0.44	-4.8
OTC	27.13	7.50	Intelligent Electronics	9.88	0.06	0.6
OTC	22.50	9.00	Merisel (L)	5.38	-1.13	-17.3
OTC	32.50	9.25	Microage Inc.	8.88	-0.06	-0.7
OTC	42.00	28.50	Paychex	40.25	-0.13	-0.3
NYS	47.25	15.75	Policy Management Sys.	44.38	1.75	4.1
NYS	28.25	19.75	Reynolds and Reynolds	27.25	0.75	2.8
OTC	25.25	16.75	SEI Corp	19.88	-0.88	-4.4
OTC	57.88	22.13	Shared Medical Systems	34.38	-0.50	1.6
OTC	8.13	4.00	SHL Systemhouse	8.13	0.38	0.3
OTC	21.50	8.25	Software Spectrum Inc.	14.88	0.25	1.6
OTC	43.25	31.50	Sungard Data Systems (H)	41.75	0.50	1.2

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Novell bends

CONTINUED FROM PAGE 1

she added. However, neither mainstream users nor Microsoft — which is now working closely with Novell on the client requester/redirector — have received any copies of it for Windows NT Server or Windows 95.

"It's putting a chill down our backs that we haven't even seen an alpha version of client requesters that support NetWare Directory Services and support for Windows 95," said Jim Lisiak, a senior networking engineer at Chevron Information Technology Co., a division of Chevron USA, Inc. in San Ramon, Calif.

"So far, it looks as though Novell has been holding back its support. I guarantee Chevron is not going to put 16-bit [Virtual Loadable Modules] underneath a 32-bit operating system," Lisiak added. "That's no way to run an enterprise network. It would cause countless network crashes and endless headaches."

An information systems manager at a large financial institution in the Midwest, who requested anonymity, said the fact that Novell was not delivering requesters for the Windows environment played a part in his decision to switch from NetWare 3.x to Windows NT Server last year.

Microsoft opportunity

"The longer Novell waits to release a client requester, the more chance there is of driving customers into Microsoft's open waiting arms," said Cheryl Currid, president of Currid & Co. in Houston.

Indeed, Microsoft appears to have done everything it can to make switching as painless as possible. After Novell terminated its licensing deal allowing Microsoft to resell a NetWare requester for Windows, Microsoft built its own client redirector and bundled it into Windows clients free of charge, said Bob Kruger, director of technology and marketing to Microsoft's Business Systems Group.

> **A rose by any other name . . .**
>
> Novell calls them requesters.
> Microsoft and IBM call them redirectors or clients.
>
> **requesters** \ri-kwest-ers\ *n*
> **redirectors** \re-de-rekt-ors\ *n*
>
> *A piece of software that runs in the operating system or network operating system. The client receives a request for data that is not stored locally. The request is then redirected to the appropriate system or server, which then accesses the data and returns it to the requesting workstation.*

"We had to do it or we would have been inundated with customer complaints," Kruger said.

Users and analysts said Novell has only hurt itself with its refusal — until now — to deliver client requesters for Microsoft desktop platforms.

"Users shouldn't have to suffer for vendor marketing wars," said Mark Herder, data communications manager at Dartmouth Hitchcock Medical Center in Lebanon, N.H. "It would be smart business sense for Novell to deliver industrial-strength requesters for every operating system as soon as they're released."

Kruger said a "renewed spirit of cooperation" does exist now between the two companies.

Still, it is hardly smooth sailing.

"Novell has told us that its Windows NT requester is in beta test. We don't have a copy, although we've requested it to help them resolve some alleged interoperability problems," Kruger said.

Drake responded by saying "the bottom line is [that] we are now stepping up to the plate to deliver cross-platform client connectivity for both the Windows NT and Windows 95 environments."

IBM sings blues

CONTINUED FROM PAGE 1

ware lines.

- A poorly executed merger of its corporate desktop brands.
- Difficulty building market presence for products like OS/2 (see story page 113).
- Overly conservative demand forecasts.

These problems contributed to the PC Co.'s disastrous performance last year when it suffered at least $800 million in losses on estimated revenue of $10 billion, analysts and other observers said.

The result has been fed up users and embarrassing drops in the company's market share. Once the undisputed market leader, the PC Co. slid to fourth place in a booming U.S. market and to second place worldwide, according to International Data Corp. in Framingham, Mass.

Still, the PC Co.'s product releases this week may push back some rivals and help the company regain market share, if not a stable hold on user affections.

The company will lead with its best punch, the ThinkPad 701C notebook computer, followed by a roundhouse right from its server group, which will offer the PC Server 320 and 720 series.

While the ThinkPad family has been IBM's sole bright spot in the PC market in the past year, analysts said the new servers should succeed. During 1994, IBM lost significant ground to server rivals, particularly Compaq Computer Corp. and Hewlett-Packard Co.

One of the crowd

Server woes have contributed to the company's overall PC problems, and success in the server market will help IBM regain some momentum, observers said. Still, IBM's core corporate desktop business remains its weakest point, as it has been for at least two years.

These intransigent PC problems have cost IBM significant goodwill among customers. "What IBM has to realize is that when it comes to making PCs, they are like any other clone manufacturer these days," said Peter Prellwitz, a microcomputer support specialist at W. B. Saunders Co. in Philadelphia. He no longer considers IBM for purchases because of what he called an IBM attitude that says, "Things don't go wrong because we state that things don't."

On the supply side, IBM's problems are likely to continue throughout the year. For instance, Bruce Claflin, the PC Co.'s general manager, said the company thinks it can leverage products such as the 701C into the No. 1 position in the notebook market but concedes that "dealers will want more than we can ship to them" until sometime after April. That means another backlog.

IBM's PC crisis reportedly has put Richard Thoman, head of the PC Co., in the hot seat. After 14 months, he has failed to deliver, even in the brand consolidation efforts that were supposed to be his forte, observers said. Despite recent public statements of support from Jerome York, IBM's chief financial officer, sources close to IBM have said Thoman may have as little as three months to hold on to his job.

But IBM has shown resilience in the PC market before. Perhaps the best case in point is the ThinkPad, which has erased IBM's status as the butt of jokes in the notebook arena. In 1992, the year before the ThinkPad came out, IBM lost $200 million on sales of only $300 million for its L40SX, Claflin said.

Some users are willing to give the company a second or even third chance.

"In the last couple of years, IBM has shown that they are willing to do some of the things that are necessary" to compete in the LAN server market, said Vincent Pepe, a systems analyst at Mutual Bank in Seattle. For instance, server management products and installation tools have added muscle to IBM's server strategy, Pepe said.

ThinkPad 701C

- Groundbreaking keyboard expands to full size
- 10.4-in. screen
- Weight: 4¼ pounds
- Size: 9.7 by 7.9 inches
- Built-in infrared

PC Server 720

- Up to six-way multiprocessing (100-MHz Pentium)
- 512K-byte L2 write-back cache
- Up to 16 byte of 64M-bit ECC RAM
- 7 expansion slots — MCA/PCI bridge

Cannavino retires

Fifty years old and loquacious as ever, James A. Cannavino, senior vice president for strategy and development, is entering what he promises will be a brief retirement. He spoke with* Computerworld *senior editor Michael Fitzgerald last week, citing as his finest achievements at IBM the development of the 3081 and 3090 mainframe families and the creation and accomplishments of the PC Co.

Q: Why leave IBM after 32 years?

A: I've had kind of the itch for a while to go be the guy who runs the company. When [IBM Chairman Louis] Gerstner arrived, I was eligible to retire. I told him I would retire immediately if he wanted me to. He asked me to stay for two years, and I did that.

There's only one business at IBM; Gerstner's running it, and he's doing a fantastic job.

Q: Do you have regrets about IBM's OS/2 strategy?

A: I kind of started on OS/2 in the middle of things. I think the team has done a great job and is finally starting to get some mind share time with ISVs. For a while there, the biggest problem was you couldn't get any ISV support. They know now that if they don't diversify a little bit, it'll hit them. Some people think it's over [for OS/2], and I think it's just starting out.

Troubles abound for OS/2

The troubled tale of OS/2 is rumored to be nearing a close. Several sources close to IBM said the company is seriously considering reducing the amount of money it invests in the operating system.

While no one says OS/2 will go away — millions of copies of OS/2 are in the market, and it is strategic to some two dozen of IBM's largest accounts — the sources said IBM could reduce it to maintenance status.

For now, IBM executives are said to be 100% behind OS/2, greater volumes of which have been sold as Microsoft Corp. continues to delay the release of its Windows 95.

IBM software chief John Thompson recently sent out a memo affirming IBM's commitment to OS/2 [CW, Feb. 7], and Lee Reiswig, general manager of IBM's Personal Software Products group, said last week that "the question for us is should we do more, not less" with OS/2. Reiswig added that "this is not a 12-month statement [of commitment]. It's a strategic commitment, not a tactical one."

Nonetheless, the sources said that if Windows 95 sharply outsells OS/2 when it comes out, OS/2 support will rapidly ebb at the highest echelons of the company.

Compiled by Michael Fitzgerald, Jaikumar Vijayan and Craig Stedman.

But did he have a spell checker?

***"In Ulysses and Finnegan's Wake,* [James] Joyce fissioned and sliced the grammatical structure of language into thought bytes. Imagine what he could have done with Microsoft's Word, a CD-ROM graphic system or a modern database! Well, we don't have to imagine – he actually managed to do it using his own brainware."**

***Source: Chaos and Cyber Culture*, Timothy Leary, Ronin Publishing, Inc. Berkeley, Calif.**

I think it's your first left, then second right ...

If you keep losing the keyboard templates that come with your software or can't remember all 300 possible Ctrl+Alt variations, **Shortcut Software** in Palisades, Calif., has an on-line answer. **Shortcut Guides** are on-screen pop-up windows with detailed shortcut information for popular Windows applications. Prices range from $14 to $29, depending upon the application supported.

An announcement to alter the market!

Instead of running to the Department of Justice to complain about vaporware announcements, **Novelty Space** is doing something about it. Now users can surf the Interset to **http://www.infohaus.com/access/by-seller/NOVELTY_SPACE**, and become "authorized to vaporize." The World-Wide Web page offers the Vaporware 0.0 Lifetime Membership Collectors Edition, which includes a Vaporware 0.0 screen saver, mouse pad, T-shirt and membership card. Novelty Space said members can break promises by the dozen, miss deadlines by months, confuse entire market segments and insult their customers' intelligence and still keep them begging for more.

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Inside Lines

No bug escapes IBM's wrath

An uninvited guest dropped in on a press luncheon with IBM's Lee Reiswig at last week's Share user group conference in Los Angeles. Namely, a rather large and fast-moving cockroach. "Look, the last remaining OS/2 bug," Reiswig deadpanned as the roach ran for daylight across the table. Another IBM official dutifully squashed the varmint in his napkin and handed it to a horrified waiter. If only it were so easy to take care of software bugs.

Alliance to bear lower-cost ISDN fruits

Dallas-based Elcon Technology's recent acquisition of German ISDN market leader Diehl will bear fruit when the company introduces the so-called SOHO Connect family of remote and server access ISDN products in the next 90 days, sources close to the company said. The SOHO Connect devices are designed to provide customers with high-speed Basic Rate and Primary Rate ISDN capabilities at a low entry price point. The SOHO products will include a series of PC- and server-based ISDN adapters. The PC adapters will range in price from $500 to $1,000, the sources said, but pricing has not yet been set for the server products.

One beta, two beta...

Microsoft plans to send out full beta-test copies of its SQL Server 95 database this week to about 2,000 users. Having completed three rounds of a so-called "technical beta" with mainly independent software vendors and resellers, SQL Server 95 is "feature-complete," said Dan Basica, a database product manager at Microsoft. "Now corporate users get to have at it." The database, intended to be the NT equivalent of heavyweight Unix databases from Oracle and Sybase, is due for mid-1995 delivery, Basica said.

Those //wild.w@cky/Internet.@ddresses

It seems the nation's daily newspapers are having a terrible time coping with Internet addresses in their articles, if complaints posted on the Internet are any indication. Some newsroom computers and wire services cannot handle the @ sign because they reserve it as an internal command that happens to garble the next few characters. The fix has been to use (at) and hope an editor will replace it with the @ symbol, but (at) is still showing up in published stories (even @ the venerable *New York Times*).

Politically correct, but will it work?

One large Oracle site has suffered headache after headache trying to install a 4,500-user E-mail system based on Oracle Office. But there's no turning back now, said a senior engineer responsible for the project. Indeed, the organization's decision to go with Office was based not on technology but on the fact that the site signed a $1.5 million, multiyear contract for a variety of Oracle products several years ago, the engineer said. Because of that, Office "was free, in a sense. Our budget was tight. It's very political."

Bay and Intel products roll forth today

Bay Networks and Intel Corp. today will unveil products designed to allow users to migrate their networks to 100M bit/sec. speeds. Kicking off the line is Bay's LattisSwitch 28000 "fast" Ethernet hub, which supports 10M and 100M bit/sec. connections. Intel's EtherExpress Pro/100 adapters are compatible with the switch. Bay will roll out stackable 100M bit/sec. Ethernet hubs in the second quarter, followed by router interfaces in the third quarter.

Seems you don't have to be a Rhinestone cowboy to enjoy a star-spangled rodeo. Just being an electronic one will do. Last week the Houston Rodeo, one of the world's richest regular-season rodeos, made its Internet debut. For less than $10, cowboys and cowgals from around the world lassoed the Houston Astrodome through the Eden Matrix Online Service home page on the Web. Their catch was a digitized live broadcast of the rodeo. If you happen to have your lariat around some hot tip you'd like to pass along, throw a line to our 24-hour tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News editor Maryfran Johnson can be reached by phone at (508) 820-8179 or on the Internet at mjohnson@cw.com.

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intel inside pentium

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